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ABSTRACT

Intended for teachers, resource staff, administrators, counselors, research workers, and individuals in training, the document presents 15 papers from a series of professional seminars on developments in the field of special education. Entries include the following titles and authors: "Direct Instruction Technology--Recent Developments and Research Findings" (on an approach which involves intensive, carefully sequenced, teacher directed small group, verbal instruction) by W. Becker, et al.; "Recent Developments and Future Trends in the Early Education of the Handicapped" (an early intervention for the retarded) by M. Pieterse; "Language Programs for the Handicapped" by S. Bochner; "Learning to Read--The Present Debate" (on psycolinguistic versus behavioristic approaches to reading instruction) by J. Gayen; "Recent Developments in Educational Programing for the Severely Handicapped" by B. Thorley; "The Unseen Handicap" (on education and communication for the deaf) by A. Wilson; "Special Education in Australia" by B. Watts; "Rehabilitation of Persons with Handicaps" (on the improvement of education and rehabilitation services in the United States in relation to their implication for Australia) by D. Brolin; "Research to Practice in Mental Handicap" (on a strategy for applying research adapted by the Habilitation Technology Project) by E. Whelan; "Therapy for Emotionally Disturbed and Their Families" (on Adlerian family counseling) by R. Lowe; "Organizing Services for the Developmentally Disabled" by A. Shaddock; "Resource Management and Utilization in Special Education" (two papers on the need for effective leadership and on a systems approach to meeting handicapped children's needs) by T. Parmenter; "Multicultural Education--The Rhetoric and the Irreconcilable" (a review of literature on multicultural education in Australia) by M. Poole; "Aboriginal Education? Preparing Children for Self Determination--A Common Goal for All Children" (on research with Australian Aboriginal Children) by A. Maggs, et al.; and "Recent Developments in Special Education--An Overview of the IYC (International Year of the Child) Seminar" by J. Ward. (SB)

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RECENT DEVELOPMENTS IN SPECIAL EDUCATION

Proceedings of the Professional Seminar in Special Education Held at Macquarie University in 1979 to Commemorate The International Year Of The Child

EDITED BY

James Ward, PhD

and

Sandra Bochner, MA, MEd

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- *J. Ward*

VISITING SPEAKERS AND PARTICIPANTS

Dr Wesley C. Becker	Associate Dean, Division of Developmental Studies, College of Education, University of Oregon
Ms A. Bevan	Staff Inspector of Pre-School Education, N.S.W. Department of Education
Dr D. Brolin	Professor, College of Education, Department of Counselling and Personnel Services, University of Missouri-Columbia
Mr L. Calendra	Specialist Counsellor for the Emotionally Disturbed, N.S.W. Department of Education
Mr A. Huggins	Lecturer in Education, University of New England
Dr R. Lowe	Professor of Clinical Psychology, University of Oregon
Mr G. McIntyre	Program Director of the Intellectually Handicapped Section, Rydalmere Hospital
Dr P.D. O'Connor	Director, Special Education Centre, Newcastle College of Advanced Education
Ms B. Scott	Program Director, Department of Social Security Granville Work Preparation Centre
Dr A. Shaddock	Program Director, Marsden Hospital
Dr D. Shepherd	Head of the Department of Behavioural and General Studies, Cumberland College of Health Sciences
Ms M. Topham	Family Therapist, Private Practice
Mr W.D. Rose	Staff Inspector, Special Projects, N.S.W. Department of Education
Mr L. Lockrey	Curriculum Consultant, Directorate of Studies, N.S.W. Department of Education
Mr K. Watkins	Inspector of Special Education, N.S.W. Department of Education
Professor B.H. Watts	Professor of Special Education and Director of the Schonell Educational Research Centre, University of Queensland
Dr E. Whelan	Senior Lecturer, Director of the Habilitation Technology Project, Hester Adrian Research Centre, University of Manchester
Dr S. Williams	Child Psychiatrist, formerly Director, Arndell Children's School.

MACQUARIE UNIVERSITY

MEMBERS OF STAFF PARTICIPATING

Ms S.E. Bochner	Education Psychologist of the Special Education Centre
Professor P. Foster	Head of the School of Education
Professor J.J. Goodnow	School of Behavioural Sciences
Dr J.D. Goyen	Senior Lecturer in Education
Mr G.D. Hotchkis	Lecturer in Special Education
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Mr T.R. Parmenter	Senior Lecturer in Special Education
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Ms M.M. Pieterse	Senior Tutor in Special Education
Assoc/Professor M.E.Poole	School of Education
Dr B.J. Thorley	Senior Lecturer in Special Education
Professor I.K.Waterhouse	Head of the School of Behavioural Sciences
Professor J. Ward	Professor of Education and Director of the Special Education Centre
Ms A.R.S. Wilson	Research Coordinator North Rocks Deaf and Blind Children's Centre Royal N.S.W. Institute for Deaf and Blind Children
Dr R.G. White	Senior Lecturer in Education

RECENT DEVELOPMENTS IN SPECIAL EDUCATION

In commemoration of *The International Year of the Child* the Special Education Centre at Macquarie University is proud to present a series of weekly professional Seminars on the topic of *Recent Developments in Special Education*. The Seminars are designed to produce a high level overview of contemporary work in special education and feature contributions from a number of distinguished visiting speakers in addition to papers by Australian special educators and research workers. It is anticipated that an important feature of the series will be the panel discussions and questions following papers and to facilitate this the program also provides for Chairpersons and Discussants with expertise in the relevant areas.

This Seminar should be of interest to a wide variety of professionals: teachers, resource staff, administrators, counsellors, research workers and those engaged in training.

As its Convenor I have been extremely pleased by the positive response shown by all the contributors in offering their services and also by the wide interest already shown by the various agencies and individuals who have been approached.

I believe, therefore, that *Recent Developments in Special Education* will emerge as a significant contribution not only to *The International Year of the Child* but also to the future development of special education in Australia.

James Ward

PROGRAM

September 14

7 p.m. - 9 p.m. INSTRUCTIONAL TECHNOLOGY

Dr Wesley C. Becker

Chairman : Professor J. Ward
Discussant: Professor J.Goodnow

September 21

THE EDUCATION OF THE YOUNG HANDICAPPED CHILD

7 p.m. *Ms M. Pieterse*

Chairman : Mr G. Hotchkis
Discussant: Ms A. Bevan

LANGUAGE PROGRAMS FOR THE HANDICAPPED

8 p.m. *Ms S. Bochner*

September 28

REMEDIATION OF READING PROBLEMS

7 p.m. *Dr J. Goyen*

Chairman : Dr B. Thorley
Discussant: Mr L. Lockrey

REMEDIATION OF MATHEMATICAL PROBLEMS

8 p.m. *Mr G. Hotchkis*

October 5

EDUCATIONAL PROGRAMMING FOR THE SEVERELY HANDICAPPED

7 p.m. *Dr B. Thorley*

Chairman : Professor J. Ward
Discussant: Mr K. Watkins

THE EDUCATION OF THE DEAF AND DEAF/BLIND

8 p.m. *Ms A. Wilson*

October 12

SPECIAL EDUCATION IN AUSTRALIA

7 p.m. - 9 p.m. *Professor B. Watts*

Chairman : Professor H. Philp
Discussant: Professor J. Ward

October 19

THE REHABILITATION OF THE HANDICAPPED

7 p.m. - 9 p.m. *Dr D. Brolin*

Chairman . Dr D. Shepherd
Discussants: Mr G. McIntyre and
Mr P. Morath

November 2

7 p.m. - 9 p.m.

WORK PREPARATION FOR THE RETARDED

Dr E. Whelan

Chairman : Mr T. Parmenter
Discussants: Ms B. Scott and Ms M. Hauritz

November 9

7 p.m.

TREATMENT OF THE YOUNG EMOTIONALLY DISTURBED CHILD

Dr S. Williams

Chairman : Dr R. White
Discussant : Mr L. Calendra

8 p.m.

TREATMENT OF THE DISTURBED ADOLESCENT

Mr A. Huggins

November 16

7 p.m. - 9 p.m.

THERAPY FOR THE EMOTIONALLY DISTURBED AND THEIR FAMILIES

Dr R. Lowe

Chairman : Professor I. Waterhouse
Discussant: Ms M. Topham

November 23

7 p.m.

ORGANISING SERVICES FOR THE DEVELOPMENTALLY DISTURBED

Dr A. Shaddock

Chairman : Ms S. Bochner
Discussant: Mr W. Rose

8 p.m.

RESOURCE MANAGEMENT IN SPECIAL EDUCATION

Mr T. Parmenter

November 30

7 p.m.

MULTICULTURAL EDUCATION

Associate Professor M. Poole

Chairman : Professor P. Foster
Discussant: Ms R. Young

8 p.m.

ABORIGINAL EDUCATION

Dr A. Maggs

December 7

7 p.m.

PROFESSIONALISM IN SPECIAL EDUCATION

Dr P. O'Connor

Chairman : Professor J. Ward

8 p.m.

OVERVIEW AND FINAL COMMENT

Professor J. Ward

INTRODUCTION

It would have been conventional at the end of the 70's to carry out some sort of review of the achievements, disappointments and missed opportunities of the last ten years. A decade is sufficiently long for both short-term and mid-term assessment and for useful predictions to be made about future trends: in ordinary circumstances, therefore, 1979 would have been a good year, as it were, for taking stock. However, it could be claimed that it was a significant year for two additional reasons. The first of these stemmed from the fact that it probably marked the end of a momentous stage in the development of special education, in which the human rights of the handicapped were affirmed and many of the issues surrounding their education and integration into the community were clarified. The second was, of course, that 1979 was selected to be The International Year of the Child (IYC).

It was inevitable that many of the activities organized to commemorate the IYC were aimed at drawing international attention to the plight of the very large numbers of children at risk in developing countries. Many of these children are destined to receive little or no education and, owing to malnutrition and susceptibility to endemic diseases, may also have very short expectancies of life: such problems are immense and can only be realistically approached through massive programmes of aid. However, similar difficulties may be found elsewhere, even in advanced and wealthy societies such as the U.K. where it is estimated that as many as one in six children may need special education help at some time during their lives. From the point of view of providing services, this is, moreover, an extremely numerous and diverse group containing both comparatively rare children such as those who are both deaf and blind and the substantial numbers of normal children who, as a result of some form of educational retardation, may be defined as learning-disabled. Many suffer, unfortunately, from other handicapping conditions in the form of material and emotional deprivation, sometimes resulting in institutionalization or other restrictive life styles.

It was to remind ourselves of the many needs of such children and to create an opportunity for an overview of current work in special education that the IYC Seminar was organized. Our basic intention was to bring together professional workers in the allied fields of research, teaching and service delivery, but we also anticipated that students, parents and members of community organizations would be interested. In order to involve as many people as possible, therefore, the format provided for one or two papers, comments from discussants and periods for questioning and discussion. In terms of the main themes of contemporary work it was possible to introduce some balance to the series but its detailed content was largely determined by the availability of several distinguished visitors from abroad and interstate and the willingness of colleagues to contribute to specialized problem areas. Even so, we thought that in such a full and varied programme, most salient issues would be touched upon and that speakers would through their choice and emphasis of materials, give an idea of the major pre-occupations of professional workers at this time. In the event this approach proved to be attractive and so we can report that the series was highly successful both from the point of view of attendance and participation: over 250 attended the inaugural lecture by Dr. Wesley Becker and probably more than 500 attended one lecture or more, a most gratifying expression of interest in special education.

The following proceedings reflect the somewhat varied approaches taken by speakers. The contributions differ considerably in length and style but are presented more or less verbatim so that readers can benefit from the longer position papers such as those of Dr. Becker and his colleagues in addition to those of more conventional length. We regret that it has not been possible to include a record of the comments by discussants and of the discussions which followed the papers: to do so would have meant a considerable drain upon secretarial resource and would also have delayed the publication of these proceedings. Moreover it is unfortunate that, for a number of reasons, it has not been possible to include all the principal papers in this volume but if additional materials are forthcoming these will be circulated in due course. But, despite these omissions, we believe that the Seminar proceedings contain some important and useful papers which will be of interest not only to those who attended the series but to special educators in general. In introducing them may we take the opportunity to thank once again the speakers and all those who took part as discussants and chairpersons for their valuable contributions and also the many people who through their attendance and participation made our Seminar such a worthwhile commemoration of the International Year of the Child.

J Ward

J. WARD

Sandra Bochner

S. BOCHNER

DIRECT INSTRUCTION TECHNOLOGY--RECENT DEVELOPMENTS AND RESEARCH FINDINGS

by

Wesley C. Becker, Siegfried Engelmann, Douglas W. Carnine
University of Oregon

Alex Maggs
Macquarie University

Prepared for lecture series at
Macquarie University, North Ryde, NSW
Australia

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W.C. Becker.

Direct Instruction Technology--Recent Developments and Research Findings[1]

Wesley C. Becker, Siegfried Engelmann, Douglas W. Carnine
University of Oregon
Alex Maggs
Macquarie University

Direct Instruction technology has been built around carefully scripted programs designed by Siegfried Engelmann and colleagues. The most well-known of these programs are the nine DISTAR® programs published by SRA (three levels each in Reading, Arithmetic, and Language).[2] Other programs involve SRA Corrective Reading (comprehension and decoding skills at three levels each), Morphographic Spelling (Dixon, 1977), and a math series (Engelmann and Steeley, 1978, 1979) covering fractions and equations. Under development are programs in expositority writing for grades 4, 5, and 6, cursive writing, a basal spelling series based on morphographs, a telephone-book-based program to teach library and reference skills, and a basic vocabulary program.

Origins

Direct Instruction had its origins in the Bereiter-Engelmann Preschool at the University of Illinois in the 1960's, and became more fully developed as a teaching system under the auspicies of USOE's Follow Through Program. In his studies of intellectual development with young children at Illinois, Carl A. Bereiter had found that whatever skills he had tried to teach could be taught. He concluded that: (1) there was no magic that could quickly make retarded or disadvantaged children smart, and (2) if you wanted to catch up kids who were behind, it was necessary to find a way to teach them at a faster rate than average. These deductions led to the Bereiter-Engelmann preschool program which was an attempt to provide a systematic curriculum two hours a day for disadvantaged four and five-year olds. Intensive, carefully sequenced, teacher-directed small-group, verbal instruction was used as the modus operandi. The evaluation of two successive groups produced very promising results (Bereiter and Engelmann, 1966; Engelmann, 1968; Bereiter, Note 2).

Siegfried Engelmann and Wesley C. Becker began working together in 1967 after Bereiter left Illinois for the Ontario Institute for Studies in Education. On the basis of the promising outcomes in the preschool studies, the Office of Education in 1967 invited Engelmann and Becker to develop a model program that could be applied in kindergarten through third grade within Project Follow Through, a follow through on Head Start. Eleven years later, the evidence suggests that Direct Instruction was the most successful Follow Through approach. (USOE, 1977; Abt Associates, 1977; Becker, and Engelmann, Note 3, Becker 1978).

Becker, a child-clinical pychologist became dissatisfied with traditional clinical procedures and explored behaviorally-based approaches. After carrying out a number of behavioral-clinical studies (e.g., Becker, Zipse, and Madsen, 1967; O'Leary, O'Leary, and Becker, 1967), he moved his attention to the classroom, studying ways to eliminate problem behaviors and improve on-task performance of children (O'Leary and Becker, 1967; Becker, Madsen, Arnold, and Thomas, 1967; Becker, Carlson, Arnold, and Madsen, 1968; Thomas, Becker, and Armstrong, 1968; Becker, 1973). These studies revealed a variety of procedures that teachers could use to reduce and eliminate problem behaviors without sending the children out of the classroom to a "therapist." They also brought to Becker's attention the great amount of "down time" present in elementary classooms, and the need for better instructional systems. After working with Sidney Bijou and Dave Phillip's to develop an elementary school program using Individually Prescribed Instruction (IPI) and behavior analysis, Becker teamed up with Engelmann in an effort to design, implement, and evaluate a school instructional system based on teacher-directed instruction.

Engelmann brought to this venture a unique expertise in the analysis of curriculum contents and the design of task sequences to teach complex behaviors, step-by-step. Engelmann also brought the skills required to teach his programs and to train others to do likewise. The venture represented a merger of an empirically-based behavioral scientist with a logically-oriented educational pragmatist. At the beginning, there were communication problems, but when it got down talking about what teachers were to do to facilitate child learning, they were in complete agreement. In keeping with B.F. Skinner's advise "Let the pigeon teach you", Engelmann let the children teach him to teach them. At the level of the children, arguments about logical analyses and behavioral principles were readily settled. Procedures worked or they did not. If they did not, they were redesigned and field tested again.

There are two other major contributors to Direct Instruction technology and research -- Douglas Carnine and Alex Maggs. Douglas Carnine, first worked with Becker and Engelmann as an undergraduate at the University of Illinois. As a college senior he became co-author with Engelmann of DISTAR Arithmetic I, and he continued to work with Engelmann on the next two DISTAR arithmetic programs and their later revisions. He has served as a field supervisor and teacher trainer in Follow Through. He has directed an experimental direct-instruction teacher training program at the University of Oregon since 1970 (when we moved there from Illinois). He has also directed a research program aimed at validating or refuting through experimental analysis the criticl assumptions and principles in our teaching and programming strategies. When Becker left Follow Through to take on an Associate Deanship in 1978, Carnine became the director of the University of Oregon Direct Instruction Follow Through Model. He is also the author of a college method texts on Direct instruction in reading and math (Carnine and Silbert, 1979; Carnine, Silbert, and Stein, in press).

Alex Maggs, learned about Direct Instruction through books (e.g., Becker, Engelmann, and Thomas, 1971; Engelmann, 1968). He has been actively involved in Direct Instruction research since working on his Doctorate at Macquarie University in 1972. He is currently a Senior Lecturer at Macquarie. Over the past eight years, his research has provided a host of demonstrations with many kinds of children on the transportability of Direct Instruction to new settings.

DIRECT INSTRUCTION

The careful program development and field testing work of the past 15 years has led to the emergence of Direct Instruction as a technologically-based approach to remediating and preventing skill deficiences. Studies using this basic technology have been carried out with retarded children (as low as severely retarded), with autistic children, with non-English speaking children, with bilingual children, with deaf children, with disadvantaged children, and with perfectly normal children in all parts of the United States, Canada, Australia, and many Pacific island groups. We will review the more salient aspects of this research later in this chapter.

Assumptions and Principles

The Direct Instruction approach is built upon the following premises which derive from empirical behavior theory and logical analyses of knowledge systems:

1. Operant (voluntary) behavior is learned.
2. Learning is a function of environmental events.
3. Teachers can control environmental events to make learning happen.
4. Intelligent behavior is operant behavior. Therefore, it is learned and can be taught.
5. Learning-rate is largely a function of teaching technology. If you can find ways to teach more in less time, the children will gain relative to those taught less.
6. Thinking and related covert cognitive processes can be taught first as overt (usually verbal) processes.
7. Program sequences derive logically from the nature of the skills and knowledge to be taught, not the individual. This implies that it is possible to teach all children with the same program sequence, although several different sequences could work equally well.
8. Task sequences to teach concepts and operations should be designed to permit one-and-only one interpretation wherever possible. If the sequence permits only one interpretation consistently, then only that interpretation can be learned.
9. Transfer of skills to related (but different) tasks and situations

must be planned for in the teaching program. There is no magic in learning.

10. Generalizaion to "new examples" not used in the teaching will occur only where there are specific cues (S^d's) present in the new examples which were the essential features of the examples already taught. Again there is no magic.
11. Instructional processes require careful monitoring and feedback systems to insure quality control.
12. If the student fails, don't blame the student, diagnose the teaching history. The teaching sequences control what can be learned.

Basic Features

Common to the various Direct Instruction programs developed under Engelmann's direction are: (1) pretested scripted lessons, (2) use of teacher-directed group instruction for part of each lesson, (3) use of specified teaching procedures, (4) specified motivating procedures, (5) specified training procedures, (6) built-in systems for monitoring student progress, and (7) a common logic in selecting teaching examples and program sequences.

The DISTAR programs are used widely in special and regular education for the first three or four years of basic skill instruction. For the past ten years, they have played a central role in the Direct Instruction Follow Through Model. Follow Through is a USOE funded program for the economically disadvantaged in kindergarten to third grade. The Direct Instruction classroom in Follow Through had a teacher and one or two aides per classroom. Usually, each specialized in one area--reading, arithmetic, or language.

Partitions or bookcases separated the groups. The noise coming from the active participation of the children sometimes was a little overwhelming at first. It didn't bother the children. The children rotated through the three "teacher's" and the seatwork activities, spending about a half hour in each area. They also participated in some large-group instruction, and where needed in firm-up activities. While priority was given to basic skill instruction, there were fun times, recess, and the other typical enriching activities of the elementary grades.

The Corrective Reading programs are used in upper elementary and higher grades. They are sometimes taught as a regular class developmental program (particularly comprehension), but most often they are taught in special classes or learning centers. Group size can range up to 25, although 15 is a preferred maximum. Morphographic Spelling is used in a similar way to Corrective Reading. In each case, the class involves a teacher directed activity, followed by student practice in prepared materials, and checkouts on student performance.

The writing and math programs are most often used as teacher directed full-class presentations with lots of student practice activities.

1. Scripted Presentations

A program is a series of tasks to be taught. To insure that what is intended gets delivered, daily lessons are designed in script form, showing the teacher what to do and what to say. This feature makes it possible, where necessary, to implement effective instruction using aides as teachers after only one to two weeks of preservice training. The use of scripted lesson plans has been criticized as restricting the teacher's initiative. However, there are some very important values which derive from the use of scripts. We are concerned with designing disseminable procedures for improving instruction. Scripts permit the use of explicitly pretested examples and sequences. The teacher knows that if the student has the prerequisite skills, the teaching sequence will work. The teacher does not have to spend time trying out various possible illustrations, choosing appropriate language, and analyzing possible teaching sequences. The scripts also make explicit the teacher behaviors required to follow them. Thus, the training requirements for a given program can be formalized in detail and executed. Next, note that a supervisor of a scripted program can walk into any room and within a few seconds be explicitly oriented to what should be going on, and thus evaluate what is going on and provide appropriate help. Finally, because the teaching sequence is standardized, it is easier to monitor the progress of the children with program-based tests. Scripts make possible what Leon Lessinger (Note 4) has termed "the missing link in education," namely quality control. While scripted presentations are not necessary or even desirable in all areas or levels of education, they most certainly can serve an important role when dealing with competencies that all children should have. They may also play an important role in teacher training (Clark, Gage, Marx, Peterson, Stayrook, and Winne, 1976).

2. Small Groups

Small groups have many advantages. They are more efficient than one-on-one instruction and provide for more adult direction, prompts, reinforcement, correction, and individualization than found in large group instruction. They also permit an emphasis on oral communication, which is frequently a problem for children from non-English speaking and economically disadvantaged backgrounds. Finally, small groups provide a setting where repetitious practice on important building blocks can be made fun, and where other students can be used as models. While we have most often worked with groups of five to fifteen students, at advanced levels and with less disadvantaged students larger groups have been used effectively.

3. Specified Teaching Procedures

Teaching procedures change with the level of student skill development. Some of the more distinctive features of Direct Instruction (choral responding on signal with rapid pacing in small-group instruction) occur primarily in the early levels of basic learnings in the DISTAR programs. Group responses keep all the children actively involved in learning (Durling and Schnick, 1976; Abramson and Kagan, 1975; Frase and Schwartz, 1975). Signals facilitate attending (Cowart, Carnine, and Becker, Note 5) and keep some children from cueing on what the others say. Rapid pacing keeps the students interested and allows more to be covered in a fixed time (Carnine, 1976a). As the students develop skills, more independent activities are built into the programs. By tying workbook or other seatwork activities closely what has been taught (so that the students can do them) and by carefully monitoring their work with checkouts, the commonly observed low productivity of seatwork time can be avoided. With careful programming, it is also possible to anticipate the kinds of errors students will make and to prepare the teacher to correct them with effective procedures.

4. Motivating Procedures

It is common knowledge that where you have skill deficiencies, you will find students who tend to avoid school-work activities. It is therefore important to build strong motivational procedures into teaching programs for basic instruction with low-performing children and for remedial programs. Within the DISTAR series, a variety of strategies can be found aimed at facilitating motivation. These include: (1) rapid confirmation of correct responding; (2) frequent use of praise; (3) use of races against the teacher to help consolidate skills; (4) use of intentional teacher mistakes to teach students to think for themselves and learn they are smart; (5) use of storylines that introduce humor, plots, and absurdities that catch the student's attention; (6) giving of points for good learning performances that lead to a grade and/or special activities or treats, and (7) use of goals and charts of progress.

The advanced programs use charting of student progress and point-contract systems tied to grades to aid motivation.

5. Training

With scripted programs, it is possible to train teachers to deliver them in much the same way as actors learn to deliver their lines. Directed practice is given using the general strategy: model, lead and test (Carnine and Fink, 1978). The supervisor shows the teachers what to do by pretending the teachers are students and the supervisor is the teacher. Then the teachers do the task with the supervisor. Finally, they do it on their own, with pairs of teachers taking turns being teacher and student. Preservice workshops are usually followed by actual classroom observations, classroom demonstrations and inservice workshops. The training requirements for various programs vary from one-to-five full days of training. This may be followed-up by several hours of inservice training each month for a year.

6. Monitoring

Criterion-referenced tests to monitor student (and teacher) progress are built into (or available for) each Direct Instruction program. These tests permit an assessment of student performance every two-to-six weeks. With the results of the tests, it is possible for the teacher to spot student problems in need of correction as well as teaching problems. They make possible doing something about problems before it is too late and the students have lost. They permit quality control.

Rosenshine's "direct instruction"

The Direct Instruction goal of teaching more in less time can be met by better utilization of the total school time available as well as by better teaching techniques. Better outcomes should be associated with more available time or more content covered in a given area, and with better student engagement during that time (Rosenshine, 1976). "More available time" is similar to Carroll's (1963) concept of "opportunity to learn." In a review of content covered studies, Rosenshine (1976) reported that in 15 to 16 studies, significant positive relations were found between content covered and student achievement gain. In a review of studies of engaged time, Bloom (1976) reported that correlations with student gain were about .40 when the student was the unit of analysis and .52 when the class was the unit.

Rosenshine (1976) has used the term "direct instruction" (not capitalized) to summarize a converging set of studies relating teaching strategies to student outcomes in reading and mathematics achievement. Rosenshine's direct instruction refers to teaching activities focusing on academic matters where: goals are clear to the students, time allocated for instruction is sufficient and continuous, content covered is extensive, student performance is monitored, questions are at a low cognitive level and produce many correct responses, and feedback to students is immediate and academically oriented. The teacher controls the instructional goals, chooses material appropriate for the student's level, and paces the teaching. Interaction is structured, but lively and fun, not authoritarian.

The studies covered in Rosenshine's (1976, Rosenshine and Berliner, 1978) reviews include: classroom observation studies by Soar (Note 6) and by Stallings and Kaskowitz (Note 7) using Follow Through classrooms for a variety of major sponsors; studies by Brophy and Evertson (Note 8) from the Texas Teacher Effectiveness Study; studies by Good (Good and Grouws, Note 9; Good and Beckerman, in press; Good, Grouws, and Beckerman, in press); studies from the Far West Lab (Gall, Ward, Berliner, Cahen, Crown, Elashoff, Stanton, and Winne, Note 10; Marlaive, Fisher, Filby, and Dishaw, Note 11; Tikunoff, Berliner, and Rist, Note 12; and studies from the Stanford Center for Research and Development in Teaching (Clark, et al., 1976).

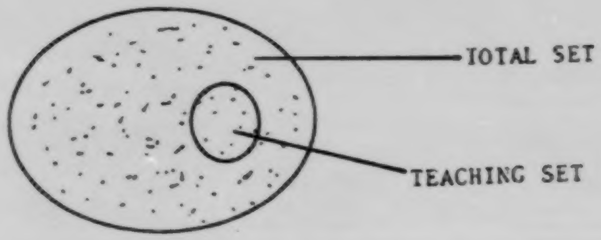
These studies give independent support to many of the teaching strategies adopted by Engelmann and Becker in building Direct Instruction programs.

Program Design Principles

A program is a sequence of tasks. By controlling the design of each task and the information contained in a related set of tasks, the programmer can control what is learned. A good design can facilitate rapid learning of appropriate generalizations. A poor design can lead to nonsense. In focusing on the teaching of high level cognitive skills in a systematic way, we have come to better formulate the relevance for teaching of a number of issues that have had prominance in learning theories for years, e.g., attention, generalization, meaningfulness, interference, memory, readiness, and cognitive structures. We will summarize some of the more salient implications for a theory of instruction which our work has taught us.

Generalization

A general case has been taught when after teaching some members of a set, the student can do all members. There are three major types of general cases: concepts, operations, and problem-solving rules (chains of behavior under stimulus control). We will discuss concept learning in this section and give examples of rule learning later.

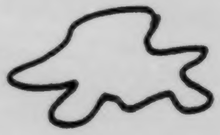


Concept learning is a form of discrimination learning in which the learner responds in the same way only to examples that contain the essential features of a particular concept (Becker, Engelmann & Thomas, 1975, p.

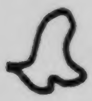
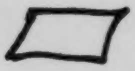
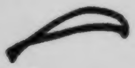
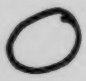
68). A discrimination learning analysis of concept learning does not predict correct generalization to situations with dramatically different stimulus characteristics than those found in training. One would not expect generalization of red-white discrimination training to red-pink-orange discrimination testing. The generalization of "red" responses to pink or orange examples would show an absence of discrimination training between red and pink-orange. Generalization occurs only with examples comparable to those used in training; e.g., we would expect appropriate generalization of red-white discrimination training to red-white testing only with values of red and white within the range used in training. This view of generalization provides a basis for an analysis and design of instructional sequences.

The analysis involves answering the question, "Is the instructional sequence consistent with more than one interpretation?" This question is a starting point because whenever a presentation is consistent with more than one interpretation, a student may learn an interpretation other than that intended by the teacher. For example, when a young, educationally high-risk student is shown an apple and told, "This is red," some of the interpretations are that "red" has to do with apple, food, round, small, or smooth. If the teacher presented an orange and asked, "Is this red?" a "Yes" response would indicate an absence of control by "redness". The student might have learned that red is round, food, or something held in the hand.

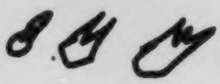
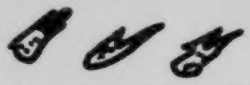
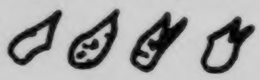
Adults often have difficulty appreciating the importance of designing presentations that convey a single interpretation; that is, a presentation with a high probability of establishing stimulus control. This appreciation is more likely when adults are in a position similar to that of a younger student: learning the meaning of a new concept. For example, a teacher draws this form on the board and says, "This is an concave region."



Indicate which of the following regions are concave:

Adults typically find this exercise difficult. The interpretations they generate are often incorrect. The difficulty is understandable; teaching a new concept with one example is often impossible. At this point some people might object that *concave region* could be better taught through a definition. While this objection might hold for teaching *concave region* to adults, concepts such as *red* or *dog* cannot be taught with a definition to younger students. For example, consider what verbal definition could meaningfully explain *red* or *under* to a four your old? Obviously, many concepts must be taught through examples to students who have limited language skills.

When examples are used as the primary instructional device, they must be selected so that the example-set is consistent with only one interpretation, the one the teacher intends to convey. To do this, the teacher often must use negative examples and a range of positive examples to illustrate relevant and irrelevant features. When less than a full range of positives is presented, some learners will form a misinterpretation. For example, Carnine (Note 13) taught college students a nonsense concept defined as a geometric form with 1, 2, or 3 points (). One group received a restricted-range set of positive examples in which all positive examples contained irrelevant dots (); negative examples did not have dots. As might be expected, most of the students learned that the concept was defined as forms with dots. In contrast another group received a full range of positives where the irrelevant dots were varied; some 1, 2, or 3-pointed forms had dots and others did not (). These students learned that the concept was defined as forms with 1, 2, or 3 points (percent correct transfer responses was 99 for the full range of positives group and 49 for the narrow range). In short, the range of positive examples can determine what concept students learn.

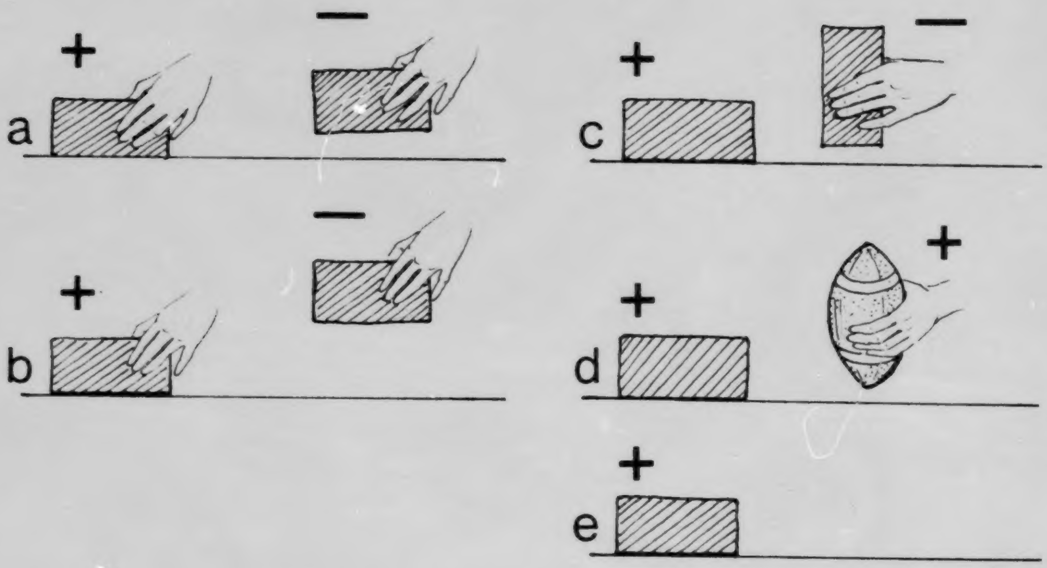
Two other studies demonstrate the applied significance of presenting a full range of positive examples. Flanders, Carnine, and Maggs (Note 14) taught a limited-language student receptive plural usage according to a widely used procedure (Guess, Sailor, Rutherford, and Baer, 1968). The procedure involved a restricted range of positives (plural labels were elicited only in the presence of two objects, never three or more objects). After training the student to criterion according to the Guess and Sailor procedure, the experimenter tested him on a full range of examples and found he had several misinterpretations, one of which was that plural labels were used with any two objects; e.g., he called a cat and a dog "cats." Training with a full range of positive examples was then introduced, and the misinterpretations were eradictated. In the second applied study(Carnine, Note 15), students were taught to transform fractions with the denominator of 100 into a decimal. The examples in the full range of positives treatment included 1, 2, and 3 digit numerators

$\left(\frac{7}{100} = .07,\ \frac{77}{100} = .77,\ \frac{777}{100} = 7.77\right)$. In contrast the examples in the restricted range set included only 2 digit numerators $\frac{77}{100} = .77$. When students were tested on a full range of new examples, students in the restricted range group consistently placed the decimal point in front of the first numeral in the numerator $\frac{7}{100} = .7,\ \frac{77}{100} = .77,\ \frac{777}{100} = .777$.

Misinterpretations can also be conveyed if unsuitable negative examples are selected or if negative examples are not presented at all. The important aspect of negative examples is that they clearly define the boundary of the positive range. For example, in Figure 1 the five pairs of examples illustrate five example sets that could be used on teach on. The boundary is most clearly defined by a set a. When an object ceases to be in contact with another object's surface, it is no longer on. In set d the negative example is very dissimilar from the positive, which means the boundary is not clearly defined. Students receiving a set d presentation might learn that on means not in the hand, within a foot of the table, horizontally oriented, a block, etc. The absence of negative examples in set e makes the boundary even less clear. Carnine (Note 16) presented sets of examples similar to those in Figure 1 and found a significant linear trend between the quality of negative examples and performance on a transfer test. (Set a, mean = 10.2; set b, mean = 7.8; set c, mean = 7.8; set d, mean = 5.0; set e, mean = 4.3. Other studies, have replicated the effect of excluding negative examples (Williams and Carnine, Note 17) and

Figure 1 about here

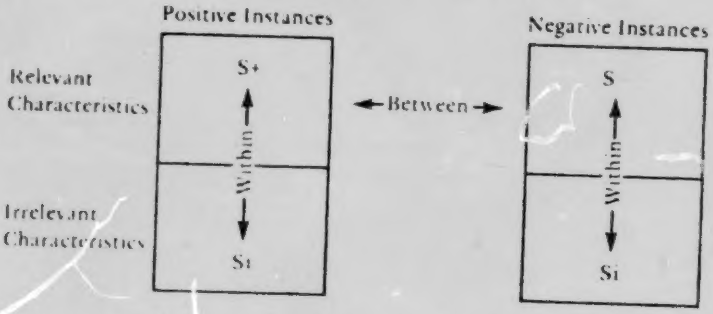
Figure 1



have found that a misinterpretation can also be learned when a restricted range of negative examples are presented (Carnine, Note 18).

In short, if an example set is comprised of a restricted set of positive and/or negative examples that do not define the boundary of positive concept features and vary irrelevant features, students might learn an interpretation that is consistent with that set, but is not the one the teacher intended to teach. The result is inappropriate generalization.

To summarize, concept learning is a multiple discrimination problem where generalization to new examples will occur only if the critical discriminations have been taught. The two aspects of this problem are as follows (from Becker, Englemann and Thomas, 1975)



Note S+, S−, and Si may be a single characteristic or a set of characteristics

Within positive examples (instances), it is necessary to discriminate relevant (S+) from irrelevant (Si) features. Between positive and negative examples, it is necessary to discriminate between the relevant chacteristics of each (S+ versus S- features).

It is not possible to teach a concept fully, without also teaching the related concepts from which it must be discriminated. Red cannot be taught without teaching non-red by presenting orange, green, and blue, etc. Also fully to teach red, it is necessary to teach that red refers only to color, not size, shape, position, pattern, or texture. The simplists of concepts requries the teaching of many concepts if a fully generalized usage is desired.

Attention

Direct Instruction sequences are designed to maximize the saliency of relevant concept features. Increasing the saliency of relevant features decreases teaching time. Procedures for increasing the saliency of relevant features include stimulus prompting, use of uniform instructions, and the isolation of relevant features.

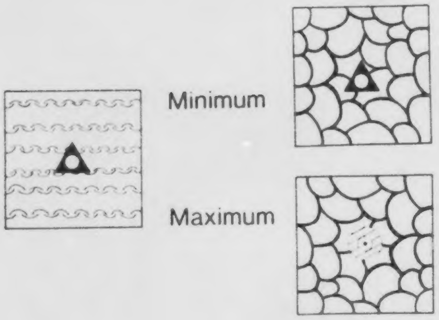
Stimulus prompting involves drawing attention to a critical attribute by exaggerating the value of the attribute (making the loop larger and darker in *b* than in *d*), by adding an emphasizer (coloring the loop in *b* red), or by using verbal prompts ("If you see a bat hit a ball then it's *b*."). The potential effectiveness of stimulus prompting has been fairly well documented (Trabasso and Bower, 1968). However, problems can occur with stimulus prompting when the prompts are faded (Warren, 1954; Restle, 1959). For example, when the red loop in *b* is faded to black, students might begin confusing *b* and *d*. Another concern is that the addition of emphasizers to complex stimuli can in fact result in students requiring more trials to reach a training criterion (Carnine, Note 19). The problems with fading prompts, especially emphasizers, suggests that exaggeration of relevant features or verbal prompts be used rather than emphasizers.

Uniform instructions during initial concept teaching allow the learner to focus his attention on the critical featuares of the examples rather than the form of the response. For example, Williams & Carnine (Note 20) compared two types of instruction for teaching *diagonal* (called "blurp"): uniform and variable. In the uniform instruction treatment, the teacher presented examples and always asked, "Is this blurp?" Preschoolers in the variable treatment were presented the same examples but with a variety of instructions: "Is this blurp?. . . Tell me blurp or not blurp . . . Touch blurp . . . Hold your hand to show me blurp . . . etc." The uniform instruction group reached the training criterion in half as many trials.

Several procedures can be used to isolate relevant attributes features: minimum differences, continuous conversions, and physical isolation. In the minimum difference procedure, the teacher simultaneously presents positive and negative example pairs that differ only in terms of the relevant attribute value (see Figure 2). Granzin and Carnine (1977) presented the same examples on conjunctive and exclusive-disjunctive concepts in two studies with first and second graders. The treatments differed in the sequence of examples: in the minimal difference group, juxtaposed positives and negatives differed only in terms of a single relevant attribute value; i.e. minimally different positive and negatives were presented. Students in the minimal difference treatment in study 1 required only 56% as many trials to reach criterion as did the students presented with randomly sequenced examples (mean = 17.4 versus 29.0) and scored significantly higher on a transfer test. In study 2, students in the minimal difference treatment made fewer errors on the conjunctive task (mean = 8.1 versus 19.1), and on the disjunctive task (mean = 21.1 versus 37.1).

Insert Figure 2

The second procedure for isolating relevant attribute values is continuous conversion. In continuous conversion, a single object or set of objects is manipulated to generate positive and negative examples. For example, a black line segment drawn on a white dial which is rotated to generate positive and negative examples of diagonal. Carnine (Note 21)


Minimum
Maximum

compared this continuous conversion procedure with a non-continuous conversion procedure, in which examples were drawn on individual cards. In one study the concept was diagonal; in another convex. In both studies trials to criterion measures were significantly less for the continuous conversion treatment (mean = 46.4 versus 10.6 for diagonal; mean = 5.8 versus .1 for convex). Since both treatments employed minimum differences, continuous conversion is a procedure that augments the effects of minimal difference juxtapositions.

The final procedure for isolating a relevant attribute value involves physical isolation. In a number of reading decoding studies (Stein, Carnine, and Maggs, Note 22), an unknown letter-sound correspondence was taught in two ways. In the isolation procedure the letter combination (e.g., *oi*) was first presented in isolation. For example, the teacher pointed to *oi* and said, "These letters usually say 'oi'." Next students read lists of words, several of which contain *oi*; e.g., *coil*, *cat*, *point*, *was*, *jump*, *soil*, etc. Finally, students read a passage that contained several *oi* words. In the non-isolation treatment student just practiced reading passages containing *oi* words. When given transfer a passage, which contained *oi* words not presented in training, students in the isolation treatment read significantly more *oi* words.

In summary, teachers can increase learner attention to relevant attribute values by carefully selecting and sequencing examples. Stimulus prompting can be achieved by exaggerating the relevant attribute value, adding an emphasizer, or using verbal prompts. Uniform instructions across tasks involving new learning increase attention to relevant attribute values by minimizing attention demands for responding. Procedures for increasing attribute salience through isolation include juxtaposing minimally different positive and negative examples, continuous conversions in which a single set of objects is manipulated to create positive and negative examples, and physical isolation in which critical aspects of examples are presented apart from the context in which they ultimately appear.

Meaningfulness

A common adage of psychology and education is that meaningful learning occurs more quickly and is remembered longer than meaningless learning (Cronbach, 1970). Becker and Engelmann (1976) have suggested that these data can be interpreted to say that "meaningful" learning takes advantage of prior learning, so that there is actually less to learn. To capitalize on this phenomenon, Direct Instruction design procedures build on prior learning whenever possible. This is done by showing a systematic relationship between new knowledge and familiar knowledge and by incorporating familiar knowledge in to more complex tasks. In one study (Carnine, Note 23) three groups of preschoolers who knew how to make *statements* about a picture (the familiar knowledge) were taught to make *commands* (the new knowledge). For a picture of a boy washing his face the statement was: *The boy is washing his face*; the command was *Wash your face*. The treatments differed according to how systematically they portrayed the relationship between the new and familiar knowledge. Least systematic was the treatment that received 7 random pairs of statement and command instructions; intermediate was the treatment that received all statements, then all commands; most systematic was the treatment that started out with small blocks of statement and command items and progressed to a more random sequence. A significant linear trend was found between the three degrees of systematization and transfer performance (means = 41%, 61%, and 69%).

Similar results were found in another study (Carnine, Note 24) in which the subject matter was addition facts. In the high meaningfulness treatment, the facts were presented and recited in related sets before memorization drill began; e.g., 6 + 1 = 7, 6 + 2 = 8, 6 + 3 = 9. The relatedness of the groupings was based on counting: 1, 2, 3 for the second addend in each problem and 7, 8, 9 for the answers. The low meaningfulness treatment consisted of fact drill on the same facts, but in random order. The mean number of facts remembered on a one-week delayed 24-item test was significantly higher for the high meaningfulness treatment (mean = 13.8 versus 6.0); training time was also higher, but not significantly so (mean = 74 versus 50). A recently completed study in which time was held constant for both treatments, found that the high meaningfulness treatment still produced higher maintenence scores.

Meaningfulness can also be increased by incorporating previously taught skills into more complex applications. For example, almost all students will have been taught single digit multiplication (4 x 2) and place value before encountering multiplication involving two digits (43 x 5). A high-meaningfulness approach might teach the students to multiply 43 x 5 by multiplying 3 x 5, then 40 x 5, which would maintain the place value of the 3 and the 40: $\begin{array}{r} 43. \\ \times 5 \\ \hline 15 \\ 200 \\ \hline 215 \end{array}$ In contrast, a low meaningfulness approach might follow the more traditional algorithm of multiplying 3 x 5 and carrying the one: $\begin{array}{r} 1 \\ 43. \\ \times 5 \\ \hline 215 \end{array}$ While this latter method is computationally quicker for adults, it may be more difficult for students to learn and possibly no faster for them to use. A study comparing these two methods (Paine, Falco, and Carnine, Note 25), found that the low meaningfulness (or traditional) approach required significantly more trials for students to reach the training criterion; and even with the extra training those students did not show higher maintenance scores.

Interference and Memory

The Direct Instruction procedures designed to reduce interference and improve memory are these: (1) sequence examples to reduce confusability (e.g., enhance their discriminality), and (2) provide adequate practice and review of critical discriminations as related sets of concepts are expanded. The two procedures are presented together because of the way they interrelate. If confusions are not minimized, extensive practice can be detrimental. Similarly, if confusions are minimized yet practice is minimal, learning and retention will be poor. Potentially confusing elements can be identified through descriptive studies; (e.g., Carnine and Carnine, in press; Note 26). Once the potential confusability of a set of elements has been identified, an order of introduction that separates similar elements can be established to minimize confusion errors. For example, Carnine (1976b) compared a similar-separated sequence for the highly similar letter-sound correspondences _e_ and _i_ (_e_, _c_, _m_, _u_, _s_, _i_) with a similar-together sequence (_e_, _i_, _u_, _c_, _m_, _s_). First graders made fewer errors (33% versus 51%), and preschoolers reached criterion in fewer trials (178 versus 293) when similar letters were separated from each other in the order of introduction.

In another study (Carnine, Note 27) the guidelines of separating similar stimuli was investigated in a visual discrimination task. Preschoolers who received a similar-separated sequence reached criterion on a later letter-matching task in significantly fewer trials than preschoolers in a similar-together treatment: a mean of 31 versus 69 trials. Moreover, Carnine(Note 28) found that when a new member is added to a previously taught set that contains a similar member, the learner should not be required to label the new member in a discrimination task involving just those two members. Rather, the new member should first be discriminated from less similar members, or initial discrimination training on the two similar members should call for a yes/no rather than a labeling response. Students required to discriminate the two similar members by labeling them required 30 trials to reach criterion. Three other treatments that separated the similar members resulted in an average of about 15 trials each.

Procedures for adequate practice involve the principles of spaced presentation and cumulative introduction. In a spaced presentation, examples of a new concept are separated from each other by examples of familiar concepts. Kryzanowski and Carnine (Note 29) compared a spaced presentation with a massed presentation in which examples of the new concept were clustered. They taught two relatively new, difficult correspondences (i and e) to preschoolers. For one group e was massed and i was spaced. In the other group i was massed and e was spaced. Since students could repeat the same answer to several examples in the massed group, training errors were fewer for the massed group (mean = 56% versus 73%). However, in the post-test, examples appeared randomly. Since the massed group received less discrimination practice during training, they tended to make more errors on the post-test (mean = 72% versus 38%).

The second procedure for providing practice is cumulative introduction;

i.e., a discrimination is introduced and practiced until it is mastered (in the context of previously introduced, related discriminations) before a new discrimination is introduced. A related set of concepts is built cumulatively. Carnine (1976b) reported that preschoolers mastered six letter-sound correspondences in fewer trials when the letters were introduced cumulatively rather than simultaneously. Preschoolers in the cumulative group required an average of 178 trials whereas the simultaneous group required 261 trials. The learning rate was not only faster for the cumulative group, but retention was better -- an average of 84% correct for the cumulative group on a post-test, in contrast to 66% for the simultaneous group. A similar study was conducted with addition facts rather than letter-sound correspondences (Carnine, Note 30). Preschoolers in the cumulative group required 197 trials on the average, whereas preschoolers in the simultaneous group required an average of 342 trials. Post-test differences were not significant. Another study on cumulative introduction (Fink and Bryce, in press) involved training of moderately and severely handicapped preschoolers on a word matching task. The cumulative group reached criterion in an average of 173 trials whereas a successive pairs treatment took 208 trials. Post-test differences were also significant: 90% versus 48%. Positive results from cumulative programming have also been reported by Cheyne (1966), Gruenenfelder and Borokowski (1975) and Ferster and Hammer (1966).

Readiness

Although readiness is usually treated as a developmental concept, we consider it to be a state of preparedness for complex learning. The preparedness can result from instruction on component skills of a complex task. (Readiness can also occur through incidental learning or maturation, but these topics are not central to Direct Instruction). Instruction in multiplication can serve as an example of developing readiness by preteaching the component skills of a complex task. Carnine (Note 31) found that primary grade children who were pretaught the component skills of the single-digit-multiplication operation required less training time (a mean of 105 versus 137 minutes) and had higher transfer scores (an average of 81% versus 61% correct) than students who learned the component skills as part of the operation at the same time.

Although identification and teaching of component skills can result in more rapid learning of complex tasks, research shows that some such preteaching is not necessary, while in other cases the need for preteaching is overlooked. For example, visual discrimination training, in part involving letter-matching tasks, is usually a recommended activity for early reading instruction. After students can discriminate letter forms, they will supposedly be better prepared to learn the alphabet or letter sounds. Zoref and Carnine (Note 32) found that sound-symbol correspondence training alone was more effective than visual discrimination training followed by sound-symbol correspondence training. Two groups of preschoolers received 17 training sessions on nine letter-sound correspondences. The visual discrimination group received match-to-sample training for one day on each letter, then two days on each letter-sound correspondence. The other group began letter-sound correspondence training on the first session, receiving three training sessions on each correspondence. Each child was tested individually after the last training session for each letter. Students who received visual discrimination training made significantly more errors, (2.2 versus .2) indicating that the time might be better spend on letter-sound correspondence training.

In other cases research suggests that needed preteaching is unnecessary. For example, Goodman (1965) emphasizes the importance of reading for meaning; that reading is the application of language. More specifically, he discusses how students apply their knowledge of semantics and syntactics when reading. Students would not read the sentence, Dan put an apple in the bag as "Dan put the apple in the bug," because they know that people don't put apples in bugs. The often overlooked assumption in the emphasis on reading for meaning is that students in fact have the language skills needed to assist them in their reading. Keith, Carnine and Maggs (Note 33) compared good and poor beginning readers in their application of language skills to reading. Poor readers made a higher percentage of decoding errors that rendered sentences meaningless (mean = 40% versus 13%). This showed that they did not have sufficient language skills to correct for their decoding weaknesses. In addition, their relative inability to recognize orally presented meaningless sentences (with manipulated semantics or syntax) indicated that they lacked some of the language skills they are expected to apply when reading (mean = 20.0 versus 16.3). In other words, the application of language to print (reading for meaning) won't be possible if students do not have the language skills to apply. Preteaching oral language skills may be necessary for some students to develop readiness so that they can apply language skills while reading.

Cognitive structures

Cognitive structures might be thought of as ways of organizing information (Anderson, 1977) or strategies for solving problems. We will restrict our discussion to strategies students can learn to apply to a wide range of related problems. For example, in beginning reading, the reading-for-meaning strategy discussed above can be compared to a decoding strategy where the learner is taught to say a sound for each letter, blend the sounds in a word, and then to identify the word. Carnine (1977) compared this sound strategy with a whole-word strategy used in "meaning approaches". Preschoolers in both groups responded to a list of 18 training words until they identified them all correctly. (The sounds group was first taught the sounds for the letters that appeared in the training words and how to blend them.) Training time was comparable for both groups, but the sounds group correctly read more transfer words (mean = 8.0 versus 4.7 for regular words and Mean = .6 versus 0 for irregular words).

Direct Instruction strategies for a variety of cognitive tasks have been studied, e.g., sequencing and literal comprehension, subtraction, comprehension of complex syntactic structures, rule applications involving protein's passage along a food ladder, the reading of words with vowel-consonant-final-e patterns, the use of context cues to determine the meaning of unknown words, fractions, and column multiplication. In each study a Direct Instruction strategy that makes explicit a set of problem-solving steps is compared with a conventional instructional procedure. Some of the strategies are quite obvious. For example, to use context cues students are taught to scan the surrounding text to determine the meaning of an unknown word. For subtraction, students draw the number of lines indicated by the first numeral, cross out the number of lines specified by the second numeral, and then make the sides equal by writing the answer; e.g., $6 - 2 = \boxed{4}$. Although these strategies are relatively simple,

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they are not directly taught in most commercial programs. For simple subtraction, students are taught to look at pictures representing subtraction or use manipulatives to solve problems. However, they are not taught a strategy to use when the manipulatives are taken away. When this happens, higher performing students intuitively know to use lines or fingers until they memorize their subtraction facts; many other students do not make the transfer and become frustrated and discouraged. Stein and Carnine (Note 34) compared a Direct Instruction strategy with a strategy from a widely used basal program. They found that students taught the Direct Instruction subtraction strategy worked significantly more problems on delayed tests taken from the basal program which was used with the comparison group (mean = 92% versus 47% on the last training day test; 89% versus 73% on the five day unit test; and 55% versus 18% on the one week cumulative test).

Other Direct Instruction strategies are less obvious. For dealing with sentences containing a clause, students are taught to generate two simple, equivalent sentences. For example, a student reads John, who ran 2 miles with Mary, was tired and sore the next day, and then mistakenly answers "Mary" to the question: Who got tired and sore? To avoid such errors, students would be taught to translate the complex sentence into two simpler sentences: the word before who would appear in both sentences. The two single sentences for the example above, would be: John ran 2 miles. John was tired and sore the next day. Kameenui, Carnine, and Maggs (Note 35) evaluated this strategy by comparing it with a practice only treatment in a multiple baseline design. Subjects were students who performed at a chance level on comprehension questions about complex sentences. All three students were presented the same items each session; strategy training was introduced to one student at a time. Percent correct increased dramatically for each student after training commenced (44% versus 90% for student 1; 38% versus 85% for student 2; and 44% versus 91% for student 3).

Another example of a more complex strategy involves drawing inferences based on rules (Kameenui, Carnine, and Ludlow, Note 36). Rules are taught in three stages of decreasing structure: rule repetition, simple applications, and complex applications. For the rule, The lower you eat on a food ladder, the more protein goes directly to you, the learner first repeats the rule to ensure information retention. The simple applications follow the wording of the rule: "A pound of beans is lower on the food ladder than a pound of hamburger. Which food gives more protein directly to you?" The students indicate that beans would provide more direct protein. Complex applications do not use the words from the rule; e.g., the item would not state that beans are lower on the food ladder. The student must use the information in the application item to draw an inference about whether beans are lower on the food ladder and then draw a second inference that beans provide more direct protein than hamburgers. (If students are to perform on complex applicaitons, they must have previously learned key concepts from the rule, e.g., food ladder.) The teacher asks, "Which food gives more protein directly to you, peanuts or fried chicken?" The student answers, "Peanuts." The teacher asks, "How do you know?" and the learner answers, "Peanuts are lower on the food ladder." The last question tests whether the learner applied the rule in arriving at an answer.

One important aspect of strategies that we haven't yet discussed is the transition from teacher structured presentations to independent student application. We refer to this transition as a convertization process. The steps made overt by the teacher become covertized when the students apply them on their own. The convertization process can be described in four steps. For column multiplication, the first step would be structured board presentations. The teacher would write a problem on the board, demonstrate the steps, and then present additional problems about which students are asked questions. The second step might be a structured worksheet presentation. Rather than the teacher writing each part of the problem, the students are required to, as the teacher asks questions. Third is the less structured step. Students continue to write each part of the problem, but the teacher provides less structure by asking fewer and more inclusive questions. Finally, the strategy is fully covertized; the students apply the strategy independently.

Paine and Carnine (Note 37) found that for some students' performance on independent work did not improve until the steps in the convertization process were carried out. These students were provided with a highly structured board presentation on multiplication each day. However, their independent performance did not improve until steps two and three were introduced (mean = 20.52 during structured board presentation versus 46.69 during structured worksheet and less structured worksheet). These results were obtained with one digit multiplicands; comparable results were found in a replication with the same students when two digit multiplicands were used (mean = 29.50 versus 73.52). These findings suggest that a carefully designed strategy and demonstration is not necessarily sufficient. In addition, many stu-dents will need to be guided through the covertization process.

Summary of Method

The Direct Instruction programs are basically instructional systems, engineered to cause certain desired kinds of basic learning to happen, if the systems are implemented. The engineering is concerned with the fine details of each task presented to the student. The engineering is concerned with transportability of program to new settings -- with ease of training and fidelity of implementation in the field. The engineering is concerned with efficiency in the use of time and tasks to accomplish important educational goals. In the section which follows we review some of the studies which provide evidence for the adequacy of our engineering strategies.

EVALUATION STUDIES

The evaluation studies of Direct Instruction programs range from the National Follow Through Project for the disadvantaged, to studies of "learning disabled" and severely retarded children in Australia. We will begin with an overview of the National Evaluation of Follow Through, a six-year study of 13 different approaches to teaching the economically disadvantaged in kindergarten through third grade.

Follow Through

In Follow Through, the developers of a variety of promising programs for teaching the disadvantagd in the primary grades (K-3) were invited to propose model programs. The models were to have an educational program at the core, but would also include comprehensive services and maximum involvement of the communities being served. Follow Through came to serve 75,000 low income children annually, from 170 communities, under the guidance of 20 model sponsors. Several of the models had their theoretical base in behavior theory - especially the University of Kansas Behavior Analysis Model and the University of Oregon Direct Instruction Model. The National Evaluation compared the performance of 13 model sponsors in the "Cohort II Study" and 16 model sponsors in the "Cohort III Study".[3]

The basic data for the Naional Evaluation were collected by Stanford Research Institute and analyzed by Abt Associates. The main reports of the evaluation were published by Abt Associates Inc. in 1976 and 1977.

A critique of the Abt reports was published by House, Glass, McLean, and Walker (1978) and rebutted by several groups in the same *Harvard Educational Review*. We would be the first to join in many points of the critique. However, the major findings of the National Evaluation of Follow Through summarized below stand in spite of the critique (see also, Bereiter

& Kurland, Note 38).

The Educational Models

This summary will be restricted to the nine major sponsors for whom there were at least eight control group comparisons in the Abt study. These sponsor groups covered a broad range of educational philosophies ranging from open educaiton to carefully programmed models based on behavior analysis principles. Five of the major sponsors have programs oriented towards using the unique motivations each individual brings to school. They derive their practices from the subjective theories of Piaget, Freud, and Dewey. They have in common: (1) individualized approaches to instruction, (2) goals which focus on the whole-person, and (3) encouragement of child-initiated activities. The models in this group include:

Open Education Model, sponsored by the Education Development Center (EDC). This model is derived from the British Infant School revolution which focused on building the child's responsibility for his own learning. Reading and writing are not taught directly but through stimulating a desire to communicate. Flexible schedules, child-directed choices, and a focus on intense personal involvement characterize this model.

Tucson Early Education Model (TEEM), sponsored by the University of Arizona. This model was developed by Marie Hughes and uses a language-experience approach. The teaching attempts to elaborate on the child's present experience and interest. A goal is to teach intellectual processes such as comparing, recalling, looking,

and relationships. The content itself is not so important. It is believed that children have different styles of learning which must be provided for. Child-directed choices are important to the model.

Cognitively-Oriented Curriculum, sponsored by the High/Scope Educational Research Foundation. Directed by David Weikart, the model builds on Piagetian concern with underlying cognitive processes which allow one to learn on one's own. As in the above models, the children are encouraged to schedule their own activities, develop plans, choose who to work with, etc. The teacher fosters the development of a positive self concept by the way the student is provided choices. The teacher demonstrates language by the useof language in labelling what is going on, making interpretations and explaining causes. The schedule for the Cognitive Curriculummodel places greater emphasis than the above models on the studentworking out a sequence of events for the day and then following that sequence.

Responsive Education Model, sponsored by the Far West Laboratory. Origniated by Glenn Nimnict (who left the program in 1971), the model is eclectic, drawing on a variety of sources including O.K. Moore's "talking typewriter", and materials and procedures developed by Maria Montessori and Martin Deutsch. The model operates through learning centers which focus on a variety of contents. The child's own interest determines where and when he works. The goal is to build an environment which is responsive to the child and will thereby teach. It is felt that the developmentof self-esteem is essential to the acquisition of academic skills.

Bank Street College Model. The Bank Street College of Education has long advocated the early childhood education philosophy adopted by Head Start and which underlies traditional middle-class nursery schools. The model incoporates strands of philosophy from Dewey, Piaget, and Freud. The goal is to help children become confident,inventive, responsive, and productive human beings. The program begins with a language experience approach to reading. Many options for learning are provided in the classroom such as blocks, games, counting materials, painting tables, quiet areas, and comfortable chairs for reading. The major responsibility for program implementation rests with the teacher, who must be able to take advantage of learning situations as they arise and to structure the classroom to increase the opportunities for learningexperiences.

In contrast to the five models oriented to the individual's unique motivation are two models oriented directly to *student skill development*. These models have their theoretical base in the objective principles of behavior analysis as developed by B.F. Skinner. Their concern is with procedures which will work and will provide skill-deficient children with the skills they will need to get the most out of schooling and life. The Direct Instruction model has already been discussed. It was built around the DISTAR programs and behavior analysis.

Behavior Analysis Model, sponsored by the University of Kansas. Developed under the direction of the behavioral sociologist, Donald Bushell, the model focuses on the systematic and precise use of positive reinforcement to enduce master in reading, arithmetic, handwriting, and spelling. Social praise and tokens, which can be traded for desired activities, are explicity used. A technology of teaching is used to sequence and present tasks in small steps, where successful performance can occur and be reinforced. Procedures for carefully monitoring the progress of the students are followed so that corrective actions can be taken before the children lose out. Training and supervision strategies are also carefully derived from an objective behavioral technology.

The remaining two models have some common features with the two major grouping discussed above, yet they stand apart.

Florida Parent Education Model, sponsored by the University of Florida. This model is based on the work of Ira Gordon (1969) who demonstrated lasting effects of teaching parents of disadvantaged children to teach their children. While the model professes philosophical allegiance to Piaget, it differs radically from those discussed above. The classroom programs of the children remain as they were. Parent educators spend part of their time in the classroom, getting to know the children and part of their time working with parents. The parent educators train parents to teach a variety of tasks which focus on language development, and provide for cognitive, affective, and psychomotor skill instruction.

Language Development (Bilingual) Model, sponsored by the Southwest Educational Development Laboratory (SEDL). Like the behavioral models, the SEDL model is curricularly-oriented and has built systematic programs in English and Spanish. However, the theoretical background is clearly not behavioral, but eclectic. The primary focus of the model is on language development. Where appropriate, language material is first presented orally in Spanishand then in printed form for reading. Later, similar materials are covered in English.

Method

The major sponsors were evaluated in four-to-eight sites with kindergartens. A smaller sample of first-grade starting sites was included where available. The children were tested at entry and each spring until third grade was completed. In each site (school district) implementing a Follow Through (FT) model, a non-Follow Through (NFT) comparison group was indentified. Each site was analyzed separately against its control group.

The analytic sample included a total of 9,255 FT children and 6,485 NFT children. Major sponsors represented 111 of the 139 sites studied.

One problem with the study was that the NFT children were often less disadvantaged (economically) than the FT children. For this reason, covariance analysis was used to adjust outcomes for initial differenes. As Campbell and Erlebacher (1970) point out, the covariance adjustment will underestimate the effects for the initially lower group.

Another problem with the study was that the outcomes confounded model adequacy with implementation adequacy. No provision was made in the analysis for evaluating model implementation at each site.

The failure to examine implementation of control groups also poses a problem. In many sites, special programs were being used for the control groups, and occasionally they were effective.

Tests. The test battery included the Elementary Level, Form F, of the Metropolitan Achievement Test (MAT) (1970); the Raven's Colored Progressive Matrices (1956); the Coopersmith Self-Esteem Inventory (1967); and the Intellectual Achievement Responsibility Scale (IARS + and IARS -) (Crandall, Katkowsky & Crandall, 1965). The Coopersmith was designed to assess children's feelings about themselves, the way they think other people feel about them, and feelings about school. The IARS measures the extent to which children attribute their success (+) or failures (-) to themselves or to outside forces.

The Children. The Direct Instruction Model has provided services to students from Low-Income homes in 10 communities. Our communities included a cross-section of "poor" America--rural and inter-city Blacks, rural Whites, Mexican-Americans in Texas, Spanish Americans in New Mexico, Native Americans in South Dakota and North Carolina, and a variety of ethnically mixed communities. Approximately 8,000 Low-Income students were in the program at one time. More than 27,000 names have entered our computer file. Other sponsors have usually served a similar range of communities.

Results: Significant Outcomes

The major findings of the Abt Report are given in a series of tables, one for each sponsor. For each variable, a covariance adjusted comparison was made with a local comparison group and with a pooled national comparison group. When FT exceeded NFT by at least one-fourth standard deviation on a given variable, and when the difference was statistically significant, this was considered an educationally significant outcome and a plus (+) was placed in the table. When NFT exceeded FT by the same criteria, this was considered to be a significant negative outcome and a minus (-) was placed in the table. When the results were in between these limits, the difference was considered null and the table left blank. At the third grade level, the one-fourth standard deviation criterion corresponds to about two months difference in grade-norm terms.

To summarize model effects in Table 1, the number of plusses for a given sponsor on a given measure is counted, then the number of minuses is subtracted and the result is divided by the number of comparisons. Both local and pooled comparisons are included. To eliminate decimals, we have multiplied by 1000. For a given effect, if a sponsor is more positive than negative, the index is positive. If the average effect is more negative than positive, the index is negative.

In other reports (Becker, 1978; Becker and Carnine, Note 39; Becker and Engelmann, in press) we have presented the Abt summary results and with different data inclusion rules. Since all the methods of analysis produce the same conculsion, we have presented here indexes based on all the data in the Abt analyses, except that results for the Raven's Progressive Materials are excluded because the Raven's is not an academic measure.

Table 1 about here

The sponsors are ordered in Table 1 according to overall rank on the outcomes index. The first four programs are the only programs with more positive than negative outcomes on some measures. Direct Instruction is the only model to show consistently positive outcomes across measures. The more open-ended, child-centered program show consistently negative outcomes.

Results: Normative Performance

The Abt III and IV Reports provide median grade-equivalent scores by site and by sponsor for four MAT measures: Total Reading, Total Math, Spelling, and Language. The means for these data by model (converted to percentiles) are presented in Tables 2 through 5. The tables display percentiles on a one-fourth standard deviation scale. With this display, differences between sponsors of one-quarter standard deviation or more are easily detected and a norm reference is provided. The 20th percentile, which represents the average expectation for disadvantaged chldren without special help, was chosen for a baseline in drawing the graphs in Figures 3 to 6.[4]

Insert Figures 3, 4, 5, 6

The Direct Instruction Model is clearly the highest in normative performance and is close to or at national norms on all measures. Four sponsors have reading programs that are making some headway toward average reading performance by the end of third grade (Direct Instruction, Behavior Analysis, Bank Street College, and Responsive Education). On Total Math,

Table 1

Index of Significant Outcomes

	No. Sites	Word Knowledge	Spelling	Math Computation	Language	Reading	Math Concepts	Math Problem Solving	Coopersmith Self Esteem	IARS+	IARS-
Direct Instruction	16	+065	-065	+656	+562	+219	+312	+479	+156	+188	+188
Southwest Lab	8	-250	000	+250	+062	+062	+250	+062	+231	-077	+231
Parent Education	12	+125	-042	-167	+042	000	-083	000	+042	+125	+125
Behavior Analysis	13	-038	-269	-115	+385	-094	-188	-156	+188	000	000
Bank Street	12	-208	-500	000	-125	+042	-167	-083	-056	-056	-111
TEEM (Arizona)	15	-367	-500	-200	+033	-300	-333	-167	-031	-094	-188
Responsive Education	16	-250	-406	-188	-062	-154	-077	-115	+042	-083	-125
Open Education (EDC)	10	-300	-400	-250	-300	-400	-300	-300	000	-250	-250
Cognitive Curriculum	9	-389	-333	-500	-222	-222	-389	-222	-167	-267	-233

Direct Instruction is at least one-half standard deviation ahead of all the others. On Spelling, the Behavior Analysis program is the only program other than Direct Instruction approaching national norms. On Language (usage, punctuation, and sentence types) the Direct Instruction program is three-fourths of a standard deviation ahead of all other programs.

The normative performance data add much to the interpretation of the statistical comparisons. The Direct Instruction program is apparently able to make effective use of teaching time in most areas of skill development so as to show a superior outcome nearly across the board.

Results: Sponsor Collected Data

Detailed findings from the sponsor collected data are presented in Technical Report No. 78-1 (Becker and Engelmann, Note 3). We have attempted to test every child in the Direct Instruction program at entry, from 1969 to 1973, and each spring thereafter through third grade. Financial cutbacks led us to omit second-grade testing one year. From 1969 until 1971, all children were tested with the Wide Range Achievement Test (WRAT) and the Slossen Intelligence Test (SIT). The SIT was used to measure general language competence. Beginning in 1972, the Metropolitan Achievemnt Test (MAT) was used at the end of first, second, and third grades.

Norm-referenced gains. Figure 7 shows the sponsor-collected norm-referenced data on Low Income children from 13 kindergarten sites for six entry years. Students are included in this analysis if they met the OEO poverty guideline (Low Income), and if they started the program at its earliest grade level, and if tests are available at more than one point in time. The MAT results from this broader sample of sites and entry years are nearly identical to those found in the National Evaluation. The WRAT results in Arithmetic and Spelling confirm those from the MAT. In all cases but MAT Reading, where they place at the 40th percentile, our students are performing at the national average. On WRAT Reading, the Direct Instruction students perform at the 82nd percentile, a full standard deviation above the national norm. WRAT Reading measures decoding skills while MAT Reading measures comprehension skills. This difference in performance levels is to be expected, given the tasks to be taught and the children being taught. (This issue is discussed in more detail in the Implications section.)

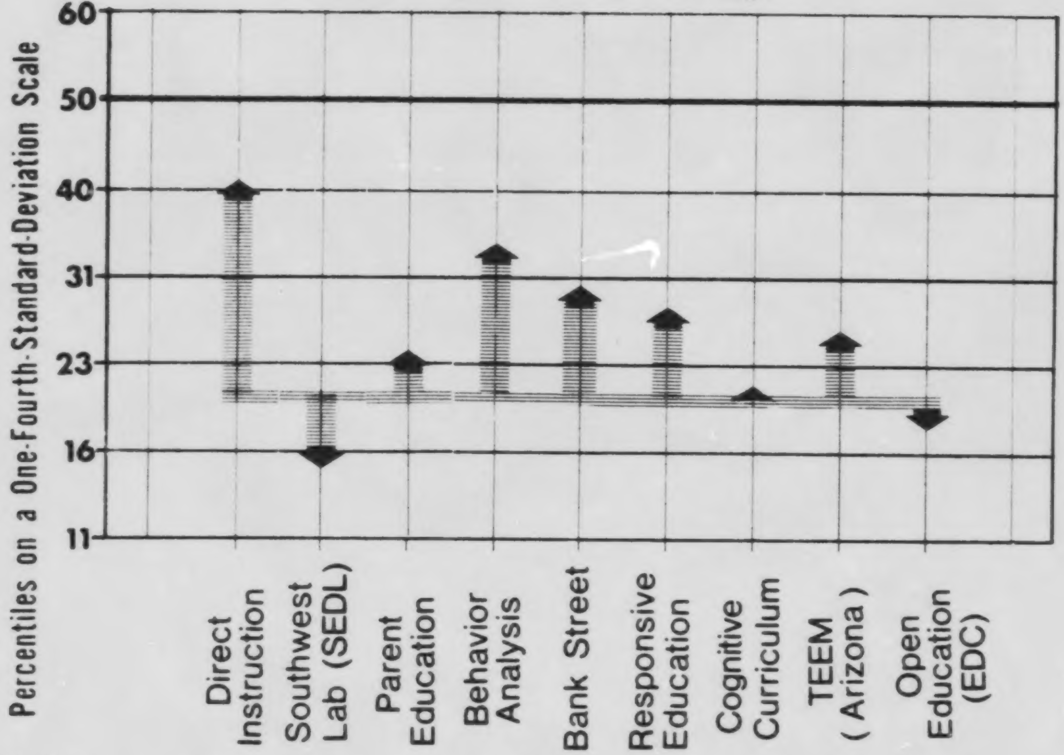
Figure 7

Other findings. Sponsor collected (Becker and Engelmann, Note 3) also support these conclusions:

1. There is a measurable and educationally significant benefit present at the end of third grade for those who began Direct Instruction in kindergarten versus first grade.
2. Significant gains in IQ are found, which are largely maintained through third grade. These average 7 points for all K-starting children and 18 points for those starting with IQ under 80 (regression adjusted).
3. Follow-up studies at 5th and 6th grade show significantly better performance by Direct Instruction Follow Through children than by comparison groups. These findings exist in spite of evidence that the schools did not systematically build on the skills the children had at the end of third grade, and in spite of losses on normative measures between third and fifth or sixth grades.[5]
4. Studies of low IQ students (under 80) show the program is clearly

Figure 3

M.A.T. Total Reading

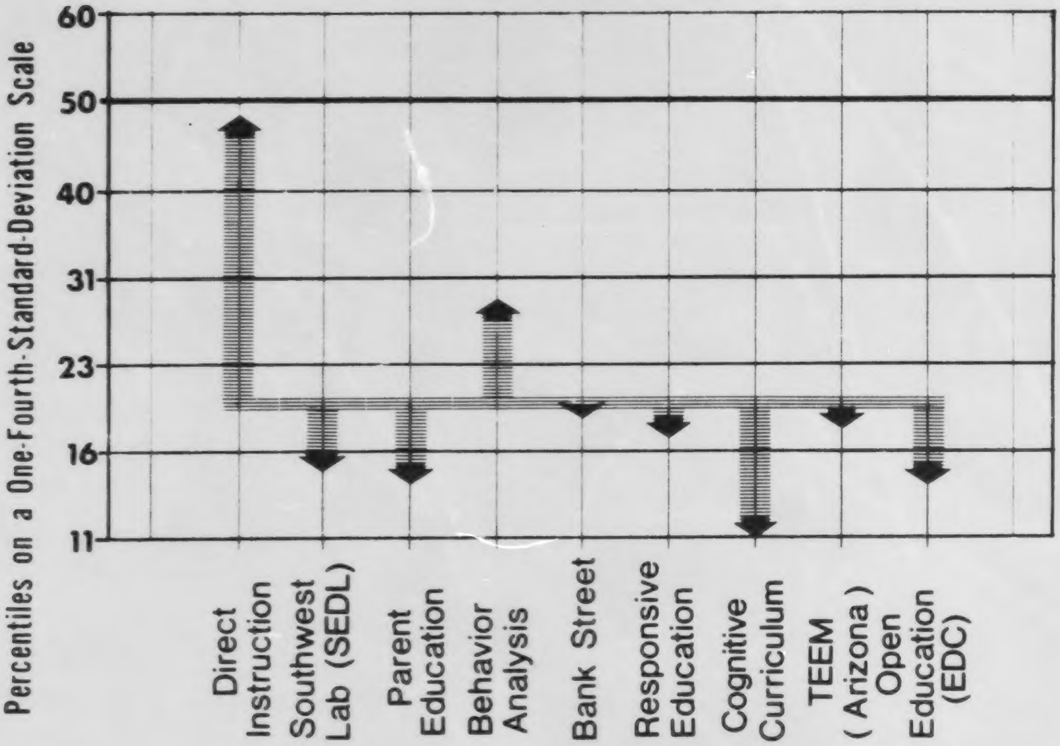


	Direct Instruction	Southwest Lab (SEDL)	Parent Education	Behavior Analysis	Bank Street	Responsive Education	Cognitive Curriculum	TEEM (Arizona)	Open Education (EDC)
%-tile	41	15	24	34	30	28	21	26	18
S. S.	58.3	49.6	52.8	55.8	55.1	53.8	51.5	53.7	50.6
G. E.	3.23	2.43	2.68	2.98	2.91	2.78	2.55	2.77	2.48

Grade equivalent for 50th percentile is 3.5

Figure 4

M.A.T. Total Math

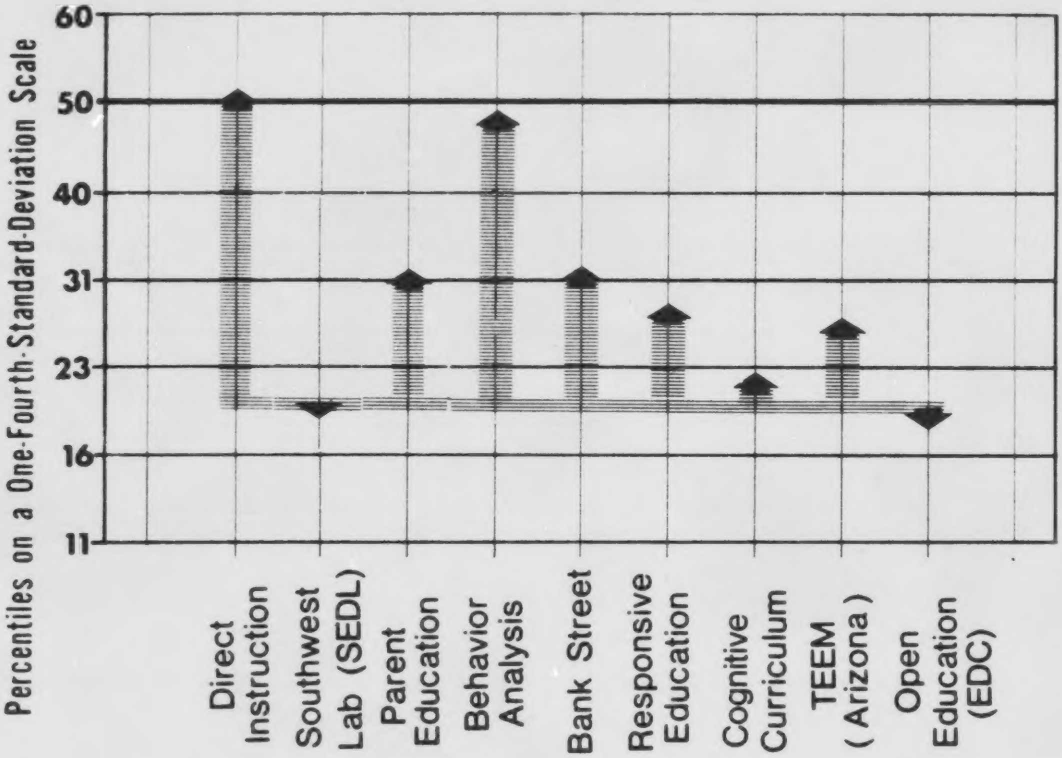


%-tile	48	15	14	28	19	17	11	18	14
S. S.	70.1	58.5	57.8	63.8	60.6	59.3	55.8	60.0	58.1
G. E.	3.71	2.85	2.78	3.24	3.03	2.93	2.58	3.00	2.81

Grade equivalent for 50th percentile is 3.75

Figure 5

M.A.T. Spelling

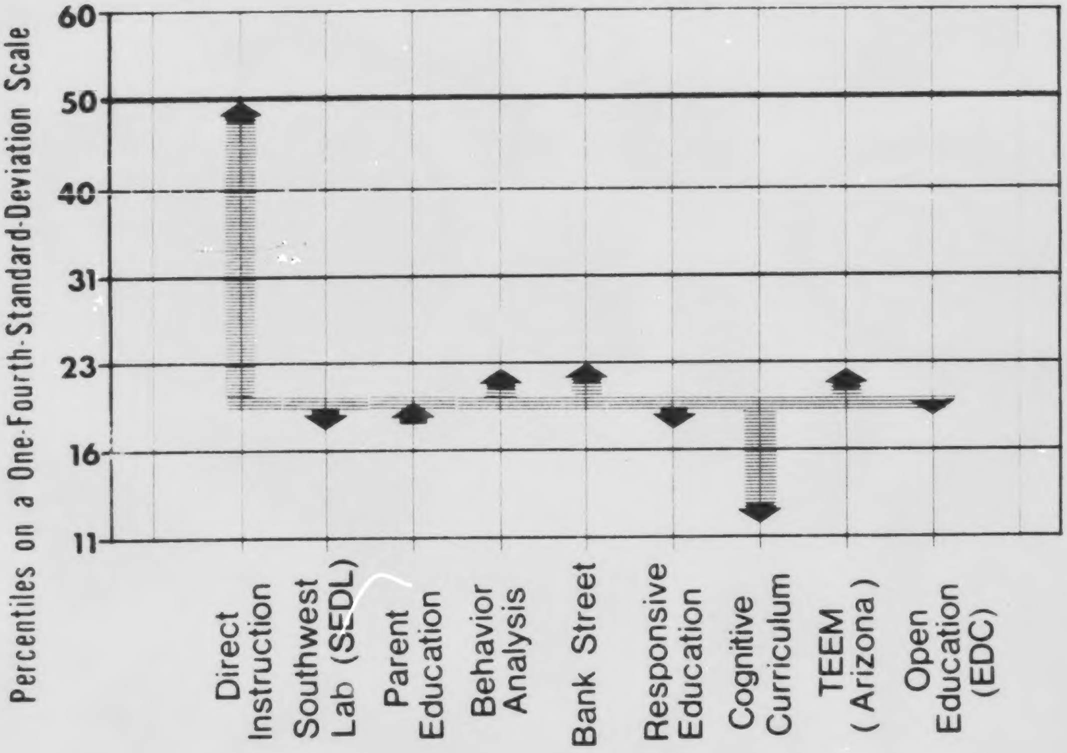


%-tile	51	19	32	49	32	28	22	27	18
S. S.	64.3	52.6	58.0	63.6	58.0	56.6	54.1	56.4	51.8
G. E.	3.63	2.53	2.95	3.56	2.95	2.86	2.61	2.84	2.48

Grade equivalent for 50th percentile is 3.6

Figure 6

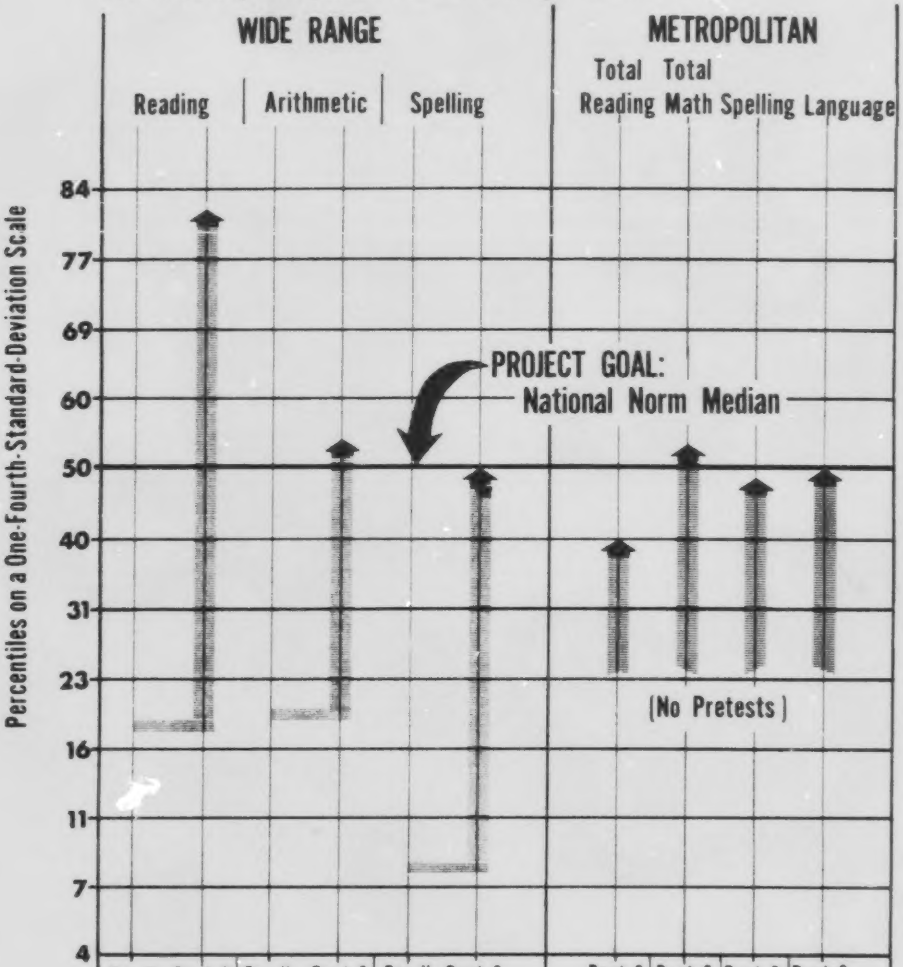
M.A.T. Language



%-tile	50	18	20	22	23	18	12	22	19
S. S.	70.0	56.0	57.2	58.0	58.6	56.1	54.1	58.5	56.6
G. E.	4.00	2.60	2.72	2.80	2.86	2.61	2.41	2.85	2.66

Grade equivalent for 50th percentile is 4.0

Figure 7 Norm-Referenced Gains on the Wide Range (Pre - K to Post3) and Post - 3 Performance on the Metropolitan for K - Starting, Low Income, E-B Model Follow Through Students.



	Pre K	Post 3	Pre K	Post 3	Pre K	Post 3	Post 3	Post 3	Post 3	Post 3
Number of Children	2472	3078	2716	3119	2555	3105	2962	2897	2847	2957
Percentiles	18	82	19	54	8	50	40	53	49	51
Mean Norm-Group Based Standard Scores (SS)	85.8	114.0	86.5	101.6	79.3	100.1	58.2	71.4	63.6	70.3
Standard Deviation of SS	16.1	20.4	15.7	8.5	20.5	14.0	10.1	11.6	11.2	13.1
Mean Grade Equivalents	.17	5.28	.20	4.02	–.09	3.87	3.32	3.99	3.75	4.33

effective with students who have a higher probability of failure. These gain nearly as much each year in reading (decoding) and math, as the rest of our students--more than a year per year.

Summary

The various data analyses comparing different approaches to teaching the disadvantaged show that the Direct Instruction model was more effective in terms of basic academic goals and affective outcomes. The Behavior Analysis Model was especially effective on Math Computation and Affective Measures in terms of significance measures, and on Reading and Spelling in terms of normative performance levels. The Parent Education and SEDL programs were the only others to show a few positive outcomes. The reader should keep in mind that some of the poor outcomes may not be model program effects, but due to implementation problems. Until this issue is faced squarely in the design of evaluation studies, conclusions about what works will have to continue to be qualified.

Implications

The Follow Through data and our extensive experience in the field attempting to generate changes in school systems permit tentative answers to a number of major issues in education today.

Does Individualization Require Many Approaches?

The programs which failed the most in terms of educational achievements were those oriented to individual needs in instruction. The popular belief that it is necessary to teach different students in differnt ways is, for the most part, a fiction. The requirements for sequencing an instructional program are determined by what is to be taught, not who. In the DISTAR programs used by the Direct Instruction Model, each child faces the same sequence of tasks and the same teaching strategies. What is individualized is entry level, when corrections are used, reinforcement procedures, and number of practice trials to mastery.

Is Self-Directed Learning Best?

A common assumption arising from dominant subjective educational philosophies is that self-directed learning is the only meaningful learning. Direct attempts to teach are said to produce isolated rote learning, not "meaningful" learning. The Follow Through results obviously demonstrate such an assumption to be false. The students performing best on all measures of higher cognitive processes were from the Direct Instruction Model. The assumption about the value of self-directed learning probably arises from observing young children (as Piaget did) interacting with the physical environment. The physical environment will directly reinforce and punish different responses. The child does learn without directed teaching how to get around without bumping into things and falling, and how to get to reinforcers. However, there is no way a child can learn the arbitrary conventions of a language system without someone who knows that system provided systematic teaching (including modeling of appropriate language usage). In addition, there can be no question that smart adults can organize and sequence experiences which will teach concepts and problem-solving skills better than children.

Does Curriculum Make a Difference?

The Kansas Behavior Analysis Model and the Oregon Direct Instruction Model shared a foundation in behavioral principles. In fact, we trained our first group of teachers together at Lawrence in the summer of 1968. The models differed in choice of curricula. Engelmann designed new curricula for the Direct Instruction Model (DISTAR), whereas Bushell adopted available curricula (McGraw-Hill Sullivan Reading, Singer Math, SRA Reading Labs) except for a phonics preprogram modeled after the DISTAR phonic program and a writing program devised by the Kansas group. The mode of instruction also differed with the Direct Instruction model emphasizing more small-group verbal instruction. The Direct Instruction Model did better on all significance comparisons, but especially on cognitive skills. On grade-norm data, the Kansas program was comparable to Direct Instruction on Spelling, was close on Total Reading, but fell behind on Math and Language. These difference susggest a superiority of the DISTAR programming strategies, but may also be due to the additional verbal practice provided by the small-group method.

Why is Improvement in Reading Comprehension Hard to Achieve?

The Abt IV Report notes that successful outcomes were harder to come by in reading comprehension than in other skill areas. Only the Direct Instruction program made significant and sustained gains (over grades K-3) in this area. Even then, we only reached the 40th percentile on MAT Reading. Becker (1977) has previously analyzed the Follow Through data and other data on reading, and concluded that schools are not currently designed to teach the English language to "poor kids" (e.g., to kids whose parents, on the average are less well-versed in knowledge of standard English). Schools are basically designed for white middle-class kids and leave largely to parents the teaching of a most basic building block for intelligent behavior --namely, words and their referents.

In brief, the major arguments for this conclusion are: (1) empirical facts showing other skills can be readily taught, and that reading comprehension is high as long as vocabulary is controlled, but drops rapidly on the end of third grade tests which move to an uncontrolled adult vocabulary; and (2) a logical analysis of the massive requirements for effective instruction in word forms, word meanings, and usage. Vocabulary instruction to an average-adult competency is a major task which involves at least 7000 basic words with twice as many meanings, an additional 15,000 related words, and about 1000 proper nouns. Basic words (Dupuy, 1974) are words which have a unique meaning in English and are not proper nouns, derivatives, inflections, compounds, archaic, foreign, or technical terms. They do not represent a teaching objective that can be accomplished by teaching some members of a set and getting "generalization" to the rest. Basic words constitute what Becker and Engelmann (1976) have called a "linear additive set", for which each member must be taught. Related words, on the other hand, can sometimes be taught as general cases by affixing basic words.

We are currently attempting to identify and define a basic adult vocabulary which will make possible the development of various programs to systematically teach language where the home does not provide adequate instruction (Dixon & Becker, Note 41). Our analysis has two major components. On the form side, we are attempting to identify the minimum set of morphographs contained in an average-adult vocabulary. Morphographs can be thought of roughly as roots and affixes. On the semantic side, we are attempting to identify a set of initial concepts (A) to be taught by demonstrations, which can be used to define a larger set of words (B). Then A and B would be used to define a larger set, and so forth. The goal will be prescriptions for vocabulary growth by grade level based on an analysis of the language and instructional requirements, not just frequency in print. One can, for example, imagine a dictionary where higher-level words are always defined in terms of lower-level words. The system might also be used to control vocabulary usage in textbooks through computer analysis. Finally, the system could be used to develop systematic programs for the initial teaching of vocabulary and practice in its use. We see these developments as making possible systematic procedures for preventing skill-development failures for a high proportion of children who now become clinical referrals.

The Australian Studies

During the past eight years, Alex Maggs has carried out a series of studies with his colleagues (including his wife Robyn) on a wide range of problem learners in Australia (Maggs and Maggs in press).

These studies involved the use of *DISTAR*, *Corrective Reading*, and *Morphographic Spelling* programs with children in regular classes, special classes, pull out groups, and special schools at the elementary and junior high levels. Retarded, migrant, aboriginal, learning disabled, and socially disadvantaged children have participated in these investigations. Their findings demonstrate that the Direct Instruction programs were effective across settings and populations when independently evaluated against norm-referenced and criterion-referenced dependent measures.

The Maggs' found that Direct Instruction provided programs across such a wide range of skills that both the "brightest" children in regular classes could be extended, while the "lowest" children in the class could develop in the same programs.

Over a period of several years (Maggs, 1978) a research program was carried out to establish the viability of Direct Instruction in the regular Australian classroom. Because children who failed in the regular classroom are routinely placed in special classes, the program was first tried in those special classes. Two teachers implemented the DISTAR Language, Reading, and Arithmetic programs with ten "normal" but severely learning disabled children in two classes. Ages ranged from nine to thirteen years. A token economy was used where small toys could be traded for points earned. Results showed an average of fifteen months' gain in the ten weeks of instruction in all skill areas, which generalized to significantly higher scores on tests such as the WISC and ITPA which were usually used to make the special school placements.

The same program was then tried in a rural school where six children of "normal" intelligence but with severe academic deficits, and some with behavioral problems, were taken out of third and fourth grade classes and placed in a "special" class in the regular school. The children ranged from eight to ten years. There was one teacher for the six children. Again a token economy used small toys as reinforcers. The results replicated the dramatic improvement shown in the city unit where the children had been pulled out of their usual schools. In fact the children in the special class at their regular school did significantly better on some of the results. Both groups had shown progress across all skill areas that were from three-to-eight times greater than would be expected from the "average" school child in the same period of time. The reaction of teachers to the findings were along the lines of "That's amazing, but you had one teacher to every five or six children; I've got to cope with thirty-five to forth kids." The next step in their research project was to discover whether an intensive remediation program that normally required a high teacher-pupil ratio could be effectively integrated into the depleted resources of the regular classroom.

The research was carried out in a regular Australian third grade classroom (Maggs, 1978). As in most regular classes there was little homogeneity. The children were aged from seven-to-nine years with WISC IQ's ranging from borderline defective to very superior, and basic skill differences covering a span of six years! The class of thirty-five children had one teacher with no aide, no parental help, and no other help. The children were placed in three groups: severe, mild, and no skill deficits. All three groups were put on appropriate levels of the DISTAR programs.

A token economy (points traded for a few sweets) was used to allow the teacher to take different groups of from ten to twelve children while teaching the rest of the class to work productively on their own. The program worked very effectively. The token economy maintained excellent work and good behavior from those children not working with the teacher. Statistical treatment of the data showed (in complete contrast to usual findings) that each of the three groups showed dramatically improved skills at the year's end, with no significant difference in the rate of learning among the three groups.

The potential of the Direct Instruction model for teaching moderately to severely retarded children was first researched by Alex Maggs in 1972. The significance of the findings was seen in the results two years later (Maggs and Morath, 1976a). Twenty-eight institutionalized moderately-to-severely retarded children, most with Binet IQ's in the 20's to low 30's, aged from 6 to 14 years, were randomly assigned to the experimental and control groups. The experimental groups were given intensive direct verbal instruction in language using the DISTAR Language I program and behavioral teaching techniques for one hour per school day over the two year period.

The control groups continued lessons with the classes' standard curricula (e.g., Peabody Language Kit and related materials). They had less intensive language programs and their teachers did not apply systematic behavioral teaching techniques.

The results indicated that the experimental group could demonstrate knowledge of a significantly higher number of concepts than the control group on post-testing. They also showed significantly greater improvement in verbal comprehension. The Piaget-Bruner tests were included to answer two questions:

1. Were these children simply rote-learning verbal concepts, or could they apply their newly learned skills and principles to different conceptual situations?
2. Would concepts learned purely by verbal instruction transfer to a nonverbal situation in which the concepts had to be demonstrated by manipulating concrete objects?

The results showed a significantly better post-test performance by the experimental subjects, indicating their skills went beyond mere rote learning and that concepts taught verbally, with only two-dimensional visual material could be applied readily to three-dimensional concrete objects. Most significantly, while "retardation" and "normality" are discriminated by IQ tests, there was a significantly greater increase in mental age for the experimental groups than for the control groups over the same period of time. The experimental group gained 22½ Mental Age months on the Stanford-Binet Intelligence Test in the 24 months of the program. In other words, these severely to moderately retarded children were progressing at approximately the rate of a "normal" child. The control group, however, gained only 7½ Mental Age months in the 24 months of the program, showing the continual intellectual deterioration usually observed in institutional settings, and pointing up graphically the ever-widening gap between "retarded" and "normal."

In another study, the DISTAR Arithmetic program was used together with behavioral techniques to teach arithmetic skills to a group of six institutionalized moderately mentally retarded children (IQ's 35 to 50). The aim of the study was to determine if the children made significant gains in four types of arithmetical skills: object counting, making lines from numerals, the meaning of plus, and increment additions. The results showed significant improvement in each of the skill areas under consideration (Bracey, Maggs and Morath, 1975a).

A group of moderately retarded children (IQ's 30 to 40) were also given the direct phonic approach of DISTAR Reading I. Tangible reinforcers were paired with social praise, the children earning money they could then spend in the institution's shop or on outside trips. The study found that moderately mentally retarded children could be taught to read using a task-analyzed, structured phonic approach, coupled with positive reinforcement techniques. The importance of reading for the mentally retarded should not be underestimated. Being able to read, these children can function more effectively in the community, have greater vocational opportunity, and have a useful leisure-time activity at their disposal (Bracey, Maggs and Morath, 1975b).

A further study of 130 moderately and severely mentally retarded children aged from 6 to 16 years used DISTAR Reading, Language, and Arithmetic programs to improve their problem-solving skills. The children were either in long-term institutions or Special Schools. Most children showed significant improvement on tests designed to check their problem-solving skills, and the specific concepts and operations that were taught generalized to significant improvement on the IQ test that classified these children as retarded. The variations in results related to the duration of the study (from 6 months in one school up to 2½ years in another), and the amount of time the schools allowed in their weekly schedule for the program (from ½ hour to 2½ hours daily) (Maggs and Morath, 1975b).

A Special School research program began five years ago (1974) using some of the DISTAR programs. The study involved 33 children with IQ's in the upper levels of moderate retardation. Twelve of these original children remained in the greatly expanded Direct Instruction programming five years later. The average age of the children who participated in the study in 1974 was ten years. They already had massive deficiencies in all academic areas. Looking at statistical data for the DISTAR Language and Reading programs that these children have now been doing for five years, it has been found that they now have the basic language and literacy skills that were thought to be beyond the "potential" of such children. At the beginning of the program they were learning at the rate of 2 months' development for each five calendar months. At this point in time they have made an average gain of 34 language-age months in the actual 32 school months of instructition. In the same 32 instructional months they had moved from nonexistent reading skills to now performing at a third to fourth grade reading level (Booth, Hewitt, Jenkins, and Maggs, 1979).

A Special School for the mildly retarded has now been involved in Direct Instruction research for several years. Significant gains have continued to be made across all areas of the programming. With these children there has also been an assessment of the transfer of the skills taught to a range of other situations. It was found that the children on Direct Instruction could generalize their classroom skills into outside situations in a way the control group could not (Maggs and Morath, 1976c).

Research into Direct Instruction with "disadvantaged" children has been carried out over a three year period at two schools made up of disadvantaged (socially, economically, and linguistically) aborigninal and white children. In the larger school 130 children aged 5 to 13 years are now on the *DISTAR* programs. Kindergarten and grades one-to-three now have all children on DISTAR as a class program. Grades four-to-six cluster those children who most need remediation on a morning withdawal basis. The aim is that all children should receive thirty minutes' of instruction daily in language, reading, and arithmetic. The three year study has shown that the number of aboriginal and non-aboriginal children who have learning difficulties can be markedly reduced by Direct Instruction methods. In addition, the implementation of Direct Instruction as basal programs in kindergarten demonstrated that these "disadvantaged" children can begin first grade with reading, language, and arithmetic skills in keeping with their chronological age. Furthermore, those children who have been taught *DISTAR* reading skills for two-to-three years have begun to demonstrate reading comprehension skills in excess of their choronological age. The study has also clearly shown that the aboriginal children have achieved as well as non-aboriginal children on the tested tasks (Hawke, Maggs, and Moore, Note 42).

The first trial of the Direct Instruction based *Corrective Reading Program* took place in 1978 in a withdrawal class comprising fourteen upper primary and early secondary students with marked reading deficits. The secondary students were selected on the basis of failure to learn to read during their lower-primary years. However, the upper primary pupils were selected on the basis on consistent deficits when reading skills were compared with other areas of academic achievement. There was an average gain of 10 months' comprehension in 7 months of instruction by the primary students, with the more severely reading deficient secondary students gaining 25 months in reading comprehension in 7 months of instruction. In reading accuracy the primary students showed 12 months' gain in 7 months instruction (Maggs and Murdoch, 1979).

The above school has also been involved in research into the new Direct Instruction based Morphographic Spelling program, in conjunction with the "disadvantaged" school discussed earlier. Forty-four children from grades two to six, whose spelling age was behind their chronological age, have to date done an average of 14 weeks on the program. In this time they have covered an average of 48 of the 140 lessons in the program. Current statistical data indicate that one-third of the children now have a spelling age higher than their chronological age, while all but two of the other children have significantly closed the gap. The mean gain in spelling age was 8½ months in the 3 month instructional period (Hawke, Maggs, and Murdock, 1979).

In all of these studies the Maggs have used independent assessors, and carried out their programs in Australian schools as they exist. This has ensured that their results are likely to be replicable in other existing school settings.

The Direct Instruction model has now been shown to be effective in the Australian school system for:

1. "normal" children in the regular classroom;

2. children in the regular classroom with mild skill deficits;
3. children in the regular classroom with moderate to severe skill deficits;
4. children going out to "resource rooms" or "withdrawal classes" in a regular school;
5. children in a "special class" within a regular school;
6. children in "disadvantaged" schools, including aboriginal and migrant children;
7. children in schools for the mildly retarded;
8. children in schools for the moderately to severely retarded.

As the children in the research programs were grouped on the basis of instructional need and not the traditional classification, there was a mixture of children with behavioral or emotional problems across all the above groups. The schools for the retarded had in addition the usual mixture of Downs Syndrome, Phenylketonuric, epileptic, spastic, and other children. The only children not yet tried on Direct Instruction are those in our schools for the blind and schools for the deaf. Maggs and Maggs (in press) conclude:

> It is certainly unique in the history of educational programming to have a model that is equally and dramatically effective across the range of 'severely retarded', 'behaviorally disturbed', 'dyslectic,' 'spastic,' etc., to 'normal' children and those of 'superior intelligence.' . . . .
> The reaction to Direct Instruction from the children, teachers, and parents, has been remarkably favorable. It is a succinct comment that the programs have been continued and extended

wherever feasible. The children delight in their obvious and rapid progress and the new levels of praise (reinforcement) they are getting from their teachers. Parents whose main concern is that their children leave school with at least a practical level of literacy (which seems little enough to ask from ten to twelve years of schooling, but is not guaranteed), see concrete evidence coming home of their child's new, and proudly shown, skills in such areas as reading, arithmetic, language, and spelling.

Teachers with anything from two to four years of training find they no longer have to pretend to be the 'curriculum experts' they are not. They enjoy the 'economies' of the program, no longer feeling that only impossible hours of individual work with one child at a time will help those in their class with moderate to severe learning difficulties. They enjoy the way the program itself objectively tests the children and highlights the rapid progress they make (in press).

Other Studies

There are a large number of studies, which add further support to the findings reported above. In this final section we will briefly mention some of the more important ones.

Preschool Studies

Findings from the original Bereiter-Engelmann preschool were reported by Engelmann (1968). The study compared 12 disadvantaged four year olds who were given Direct Instruction for two years with 12 disadvantaged control children who received a traditional preschool education following a child development model. On the Stanford-Binet, the mean IQ of the experimental group changed from 95.3 at pretest to 121 at posttest. The disadvantaged control group changed from 94.5 to 99.6. The Wide Range Achievement Test was given to the experimental group only (the control group did not have the skills). Mean performance in reading (decoding) was 2.6 grade equivalents, and in arithmetic, 2.5 grade equivalents.

A second experimental group of middle-class children who received one year of Direct Instruction was compared to a middle-class control group who had one year of Montessori preschool. The middle-class children in Direct Instruction reach the same levels of performance in one year as the disadvantaged children had in two years. The middle-class control group averaged 1.04 and 1.2 in reading and math on the WRAT.

In the Planned Variation Head Start study, nine Follow Through Sponsors used their models with the Head Start programs within their Follow Through sites. Weisberg (Note 43) reported the findings for the third (and final) year of this study. The Direct Instruction students in this study consisted of five-year olds in Tupelo, Mississippi, and East Las Vegas, New Mexico. Twelve of the 17 significant outcomes were produced by the academic focused models from Oregon (5 out of 8), Kansas (4 out of 8), and Pittsburg (3 out of 8). No negative outcomes were found for these models.

Pre School-Early Grade Studies

Richards (Note 44) studied the use of DISTAR programs for one year in six classes of disadvantaged children (1 four-year old preschool class, 3 kindergartens, and 2 first grades). Five control classes of less disadvantaged children were used 1, 2 and 2, respectively). The results showed that the experimental groups did significantly better on:

a. Tests of Basic Experience (Language) in kindergarten and first grade;

b. WRAT Spelling and Reading in preschool (four-year olds);

c. WRAT Spelling, Arithmetic, and Reading in kindergarten and first grade.

Richards concluded that the disadvantaged can "catch up" with middle class children with proper instruction.

Callahan, Erickson, and Bonnell (Note 45) reported the results comparing children at the end of first grade who had 3 years (N = 15), 2 years (N = 13), 1 year (N = 12), and 0 years (N = 12) for Direct Instruction. The tests used were the Stanford Binet and the Stanford Achievement Test (SAT). They found that disadvantaged students with 3 years of Direct Instruction were nearly one full year above national norms on measured intelligence. Those with 1 or 2 years of Direct Instruction were at national norms on the averages, and the controls (0 years) were one year below national norms. On the SAT the disadvantaged students with three years of Direct Instruciton performed 1.5 to 1.6 grade equivalents on the six SAT subtests.

James and Stier (Note 46) studied students who were in a parent-operated DISTAR preschool for economically disadvantaged children (CAMPI Satellite School) and were then fed into DISTAR programs in kindergarten, first, and second grades. Their performance was compared with that of children in the Head Start and Follow Through Cognitively-Oriented Model developed by Weikart. In each program, 10 percent of the children were not disadvantaged.

The Metropolitan Readiness Test was given to beginning first graders. The Metropolitan Achievement Test (Primary I) was given to beginning second graders. On the Readiness Test, the DISTAR group (N = 53) scored at or above the overall mean on Word Meanings and Numbers subtests. The Weikart groups all scored below the mean. On MAT Primary I, the *DISTAR* groups were significantly higher than the Weikart groups. The mean for the *DISTAR* group (*N* = 72) on MAT Total Reading was 2.0 grade equivalents, and on Math 1.8.

Cafarella (Note 47) compared *DISTAR* and non-*DISTAR* groups in kindergarten, first, and second grades. Only the Reading and Language programs were used. The *DISTAR* students were significantly higher on reading measures at each grade level. The first graders also showed a significant gain in Kuhlmann Anderson IQ scores. *DISTAR* second graders had a median score of 2.5 on Word Knowledge and 2.4 on Reading (MAT Primary I). The non-*DISTAR* classes had a median score of 1.9 on Word Knowledge, and 2.0 on Reading.

Special Education

In Edmonton, Canada, M. Crozier and Youngberg (Note 48) showed that low achieving third and fourth graders gained between 1.2 and 2.0 grade levels during one year of *DISTAR* *Reading* and *Arithmetic* instruction. Parents were extremely high in their evalution of the program effects on their children. R. Crozier (Note 49) studied use of *DISTAR* programs with junior high educable mentally retarded students. These students showed gains at a better than average rate on reading and math measures.

SUMMARY

Direct Instruction offers considerable promise as an approach to the alievation of skill deficiencies. The approach is based on principles derived from empirical behavior theory and logical analysis of knowledge systems. The goal is a sophisticated application of available technology to learning problems. Common to Direct Instruction programs are the use of pretested scripted lessons, use of teacher-directed group instruction, use of specified teaching procedures, specified motivating procedures, specified training procedures, and built-in systems for monitoring student progress.

The most widely known Direct Instruction programs are the nine DISTAR programs published by SRA. Other programs involve Corrective Reading (six programs, Engelmann, et al., 1977, 1978, 1979), Morphographic Spelling (Dixon, 1978), and a math series covering fractions and equations (Engelmann and Steeley, 1978, 1979). Programs are being developed in cursive writing, basal spelling, creative writing, reference skills, and vocabulary.

The principles underlying the design of Direct Instruction programs were overviewed. Most central to good design is the pre-analysis of what is to be taught to identify "general case building blocks". The designer is seeking small sets of component skills that can generate a wide set of applications. The goal is to teach more in less time. Once a potential analysis is completed, the problem becomes one of designing and sequencing tasks that are subject to one and only one interpretation so that the student learns what you want him to learn. Examples of programming strategies were given.

The evaluation studies show the Direct Instruction programs to be consistently effective in a wide range of settings, with a wide range of problems. In Follow Through, Direct Instruction brought disadvantaged children near grade level (on the average) on most measures of academic progresss. The Direct Instruction students also were significantly higher than control children on measures of self esteem and locus of control. Some issues important to the future design of educational systems for children from disadvantaged backgrounds were discussed.

The Austrailian studies by Maggs show that the successful application of the techniques is not restricted to the "inventor". Retarded, migrant, aboriginal, learning disabled, socially disadvantaged and "normal" children all greatly benefited from Direct Instruction programs.

A final group of studies extend the application of the programs to preschools and a variety of school settings in the United States and Canada.

A major obstacle to overcoming ignorance is the belief that it can't be done. The evidence on Direct Instruction technology is showing that ignorance can be conquered. We may need to actively re-examine our assumption about who can learn what.

FOOTNOTES

1. Parts of this chapter are summarized from the book in preparation (Engelmann & Becker, Note 1, Forward from Basics -- The Case for Direct Instruction). All rights are reserved by the authors.

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2. DISTAR is a registered trade mark. It is an acronym for Direct Instruction Systems for Teaching and Remediation.

3. Cohort II children entered kindergarten or first grade in the Fall of 1970; Cohort III children entered the program in the Fall of 1971.

4. An Office of Education report (1976) substantiates this approach: "Analysis of all test scores showed that the typical student who received compensatory assistance in reading was at the 20th percentile for grade 2 and the 22nd percentile for grades 4 and 6" (p. 88). Moreover, in a footnote to page 88, this additional information is given: "In conjunction with the Emergency School Aid Act evaluation, children in grades 3, 4, and 5 of a nationally representative sample of minority isolated schools (50% or more non-white) performed at the 23rd, 18th and 19th percentiles,

respectively, on reading achievement in the Spring 1973; similar results were obtained for mathematics achievement" (Ozenne, D.G., *et al.*, 1974). The educational requirement for Title I eligibility (one year or more below grade level) is the 20th percentile for Metropolitan Total Reading.

5. Weber and Fuhrmann (Note 40) followed up the first Follow Through students in East Saint Louis to complete the ninth grade (six years after leaving the program). One hundred and twenty Follow Through students were compared with 1524 non-Follow Through students on the California Achievement Tests. All mean differences favored Follow Through except Spelling. A greater percentage of Follow Through students tested above norm average in each case except Spelling (Reading 16% vs. 11%; Math 10% vs. 6%; Language 23% vs. 13%; and Spelling 18% vs. 29%). As in our own follow up studies at fifth and sixth grades, it is apparent that the children (without special programs for six years) are losing relative to national norms. There is still a need for a continuous *Follow Through* to facilitate continuous language development (see Implications).

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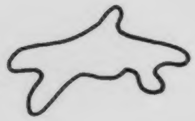

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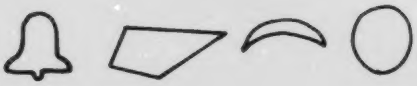

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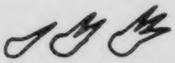

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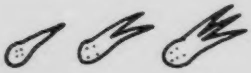

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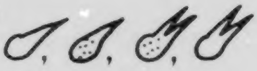

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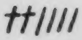

RECENT DEVELOPMENTS AND FUTURE TRENDS IN THE EARLY EDUCATION OF THE HANDICAPPED

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In June, 1978, at Stirling in Scotland, 2000 delegates from countries around the world met at the First International Congress on Future Special Education. This was no Aldous Huxley futuristic speculation, but a hard look at current trends in special education and an examination of where these trends were leading in the near future. (Fink 1978)

The outstanding feature of this gathering was the universal acceptance of the right of every child to have the education he needs to overcome his handicaps and to participate wholly in his society. Early education was recognized as one of the most important ways. This was acknowledged by de Lorenzo from South America in her opening speech. She stated that the trends were at present underway which would see by the year 1985:-

1. Each child receiving the program and input which he personally needed and to which he has a right. This would be achieved by -
   - (a) Early intervention
   - (b) More intensive use of individualized prescriptive instruction.
   - (c) More intensive training of teachers both at preservice and inservice level.
2. Increased progress towards deinstitutionalisation with an acceptance and implementation of integration and even mainstreaming of the handicapped into the normal stream of society.
3. Expansion of parent involvement in the education - and a recognition that parents are teachers at home and that a significant portion of every child's education is dependent upon the guidance the child receives at home. A necessary corollary of this, is that these will be effective parents having programs and supportive professional teams of educators.

The importance of early education in this prediction is totally justified by the large body of research which supports its effectiveness. (Tjossem, 1976)

Now that the essential characteristics of effective early intervention programs have been identified and longitudinal studies have demonstrated the techniques for maintaining the skills, Bronfenbrenner's (1974) question, Is Early Intervention Effective?, is no longer a disturbing one. The focus of interest is moving from researching the effectiveness of early intervention to the investigation of refining the technology and to the investigation of workable service delivery systems

However, the research will not be translated into practice or the ideals into reality unless society recognises the rights of the handicapped and institutes the necessary legislation to provide for them. The U.S.A. took this important step in their Public Law 94-142, in conformity with the United Nations Charter for the child and for the handicapped. Public Law 94-142 stated that - "a free appropriate public education will be available for all handicapped children between the ages of 3 and 21 by September 1980.".

Previously Public Law 93-380 (1968) the Handicapped Children's Early Assistance Act called for exemplary model programs and its 1974 amendment required that each state set a goal for serving all handicapped children from birth through age 21.

In the United Kingdon an important document, the Warnock Report (1978) advised in Chapter 5 (dealing with children under 5) that -

> "The education of children with disabilities or significant difficulties must start as early as possible without any minimum age limit"

It emphasises the necessity to involve parents - "in the earliest years parents are the important teachers " and suggests a home-based teaching service -

> "a comprehensive peripatetic teaching service which would cater wherever possible for children with disabilities or significant difficulties below school level".

A leading British educationalist Professor Mittler of the University of Manchester recommends:

> "As soon as the child is identified as handicapped, even if a few weeks old, the initial professional support comes from a teacher who visits the home frequently and helps the parents teach the child the next steps in his development." (Mittler, 1978)

He also argues the need for a full program of service training for teachers to deal competently with this new field of teaching and the need to investigate appropriate curriculum.

Legislation and reports with the strength of Public Law 94-142, Public Law 93-380 and its 1974 amendment and of the Warnock report in the United Kingdom, sprang from the culmination of two powerful forces. The first of these is the growing acceptance that handicapped persons have the right to be integrated into society and that education is one of the main ways to achieve it.

The second is the large body of research which shows that there is no evidence to support the isolation of handicapped children and that early educational intervention is vital to help them to participate fully in society.

This research has shown that intelligence is not necessarily determined at birth and that environmental conditions, especially education, have considerable effect on it. It has also shown that early educational intervention can substantially raise the functioning levels and achievement of socially disadvantaged and mentally retarded children. Research has made it possible to identify the essential requirements for effective early intervention programs. The focus of research continues in its search for improved technology in teaching young handicapped children - both in the instructional field and the curriculum development area.

Another recent development of concern is the investigation of effective service models. At the early stage this involves the teaching of parents and the need to take education out of the classroom and into the home. It also concerns a recognition of the necessity to explore service models which include other disciplines such as physiotherapists and speech therapists.

In an investigation of service delivery the inevitable question arises concerning the number of children needing this service. Demand for "at risk" registers of possibly handicapped children are viewed with concern because of the dangers of early labelling and the lack of predictive validity of infant testing. Numbers are usually extrapolated from broad population surveys so that the numbers of preschool handicapped children are based on estimates of school-aged children.

The following table shows an estimate of children in the U.S.A. (Dunn 1973) and a comparison from figures in West Germany (Schindele 1978).

INSERT TABLE 1 HERE

The above table shows the difficulty of categorising children for the purpose of statistics. In the American estimates the group designated educationally mentally retarded (E.M.R.) and the specific learning difficulties group, do not equal the "mildly handicapped group" in the German survey. It is possible that some of these are included in the speech handicapped group in the U.S.A. list, as the major problem of many mildly intellectually handicapped children is their language.

The difference between the percentages of deaf children in the two countries also suggests the inclusion of different degrees of hearing impairment when categorising children in the surveys.

These figures give an approximate estimate of the numbers of children concerned in the topic under discussion. It appears that between 8 and 10% of the child population is in need of special education at school and presumably earlier.

As other papers in this series focus on special education of sensorily handicapped children, I propose to focus on those children designated as intellectually handicapped (Group A in Table 1), while recognising that many of the learning problems and educational technologies for most handicapped children are similar. The recent research in education for intellectually handicapped children may be used to predict the trends that future educational services will follow. One method, therefore, of examining the topic recent developments - or trends in - early education for the handicapped is to examine the current research in more detail.

Historically, two main movements may be seen in this research, and they are concerned with two levels of retardation. Caldwell (1975) identifies these as -

1. Programs designed to prevent retardation

and

2. Programs designed to alleviate mental retardation.

The first - the programs to prevent retardation are concerned mainly with the socially and economically disadvantaged child, who would be mildly handicapped at school, if pre-school programs were not available to him. This would include many children in the E.M.R. and S.L.D. sub-groups in Table 1. There is a large body of research in this area. It centres around the Headstart program in the U.S.A. in the 1960's, and the Followthrough programs referred to by Professor Wesley Becker in this series. This research has culminated in the development and application of a variety of intervention strategies.

The 1970's saw a marked improvement in pre-school services to disadvantaged children as a consequence. This has been one of the most encouraging developments in early education.

The second of the movements - the development of programs designed to alleviate mental retardation picked up its impetus from the research for mildly handicapped children. It is a recent development, more concerned with the moderate and severely handicapped child whose learning problems are more difficult. The children identified as T.M.R. in Table 1 fall into this category. Further research was needed into the techniques of teaching for this population, as the realisation developed that intervention must commence for these children as soon as the handicap was identified, which could mean soon after birth. It therefore involved a greater commitment to parent training and to interdisciplinary intervention.

Examples of Research in Compensatory Programs for the Mildly Handicapped

Key research projects illustrate the development of early educational movements. In this series Professor Wesley Becker demonstrated the effectiveness of the Distar program and its follow-through to 3rd grade as reviewed in the A.B.T. report. This was an outstanding example of the programs originating from Headstart in the U.S.A. for the mildly handicapped child.

Another famous project was the Milwaukee Project (Heber 1972). In this research Heber identified high risk families by selecting mothers in a poor black area. The mothers had I.Q.'s below 75. They were provided with a six year program which set out to have a total environmental impact. There was instruction and counselling to the mothers in all aspects of daily living and a centre instruction program plus health care for the children. The results of this project showed that children in the experiment when post tested at 9 years of age were maintaining I.Q. scores above 100, and had a 20 I.Q. point advantage over a control group of children.

Another outstanding research which has influenced developments in early education is the Portage Project by Shearer and Shearer (1972).

This was a long term project for rural children aged 0-6 with an average I.Q. of 73. It was a home-based program designed to meet the needs of country children unable to travel to centralized services. It consisted of a prescribed curriculum covering all areas of child development. The children were assessed on the list of developmental skills, objectives set and the mothers were shown how to teach their children. The results reported an average gain of 18 I.Q. points compared to other children who were not in the program.

These programs represent many others which appeared at that time. They had in common a recognition of certain needs - these were:

(1) The need to commence intervention as early as possible in the child's life.

(2) The necessity of providing a structured curriculum and of setting clear objectives for the individual child.

(3) The necessity to use proven instructional techniques to achieve the defined objectives.

(4) The necessity of involving parents of young children in teaching and decision making.

It was apparent from these research projects that early intervention programs were effective. The next question asked by the researchers was whether some were more effective than others. Comparative studies began to attempt the difficult task of identifying the elements within programs which contributed most towards their efficacy. Karnes (1973) set up a comparative study of five different programs to investigate this question.

She examined 5 pre-schools with different theoretical approaches - ranging from the traditional child-centred free-play situation to the more highly structured goal oriented program. The results of this comparative study showed that children in the two highly structured programs with the highest adult-child verbal interaction made the most gains. She concluded that the children who received direct instruction on individualised programs where the goals were clearly defined made the most progress. She further noted that the two goal-oriented programs embodied skills leading to those needed in later school years, and as a result the children maintained their early skills several years later.

An Australian research project similar in some respects to the previous one was recently completed in N.S.W. This was the Mt. Druitt Early Childhood Project, funded by the Van Leer Foundation, and researched by a team from Macquarie University. Follow_up studies will be conducted for some time, but a report of the initial project will be made in 1980, and some information is now available, (Alexander & Clark 1979). The aim of this project was a study of the processes of curricular development and implementation and the evaluation of outcomes attempting to establish the different effects that program practices have on the cognitive and psycho-motor development of young children, as well as their impact on families and schools.

There were five different programs provided in an area designated as a disadvantaged area. These were:

1. a behaviourist program aiming to develop academic and social skills.
2. a competency program - aimed at developing social competence.
3. a cognitive program - aimed at developing logical, physical and social knowledge, representation and interactive skills.
4. a contemporary Australian program in the maturational tradition - the child acts independently on innate motivation - aim to emphasize child's self expression through a child-centred atmosphere.
5. a home-based - aim to focus on communication skills and management patterns within the family.

The researchers' proposal was that different theoretical orientations had different aims and therefore comparisons across programs on certain measures would not be possible. They were interested to see whether each program achieved its own aims and whether the program children were superior to children who had not received any pre-school intervention. There were in fact, highly significant differences between pre-schoolers and non pre-schoolers on all measures. (Alexander & Clark 1979.)

Further results are yet to be published but there are indications that there is less washout of effects where the school's program objectives were extensions of the pre-school and conversely less maintenance of skills where the school objectives and treatments differed from the pre-school.

The Mt. Druitt research team support the contention that:

> "Pre-school education can be compensatory for socially disadvantaged children."

They did not find large differences on common tests between different theoretical approaches, but it should be pointed out that they did not set out to prove this and there was not the sponsor control of the teaching techniques, as reported in the ABT report on the Follow-Through program.

Research in Compensatory Programs for the More Handicapped Child

Experiences gained from programs developed to prevent mental retardation in socially disadvantaged children contributed towards the research into the problems of the more handicapped child. This is a more recent development in research and the outcomes of these programs are now appearing in current journals. Frequently they include Down's Syndrome children. These children are usually identified at birth, can be expected to be moderately or severely handicapped and are the largest single category of moderate to severely retarded children. Because there is a reliable method of identification which can be done early, they form an ideal research group for investigating the efficacy of early intervention programs for the mentally retarded.

There are three outstanding programs for Down's Syndrome children in the U.S.A. They are the University of Washington's program at Seattle for children aged 0-5 with a follow-up study. (Hayden & Haring, 1976) The University of Oregon's program for children aged 0-3 years. (Hansen, 1976) and the University of Minnesota's program the E.D.G.E. program for children 0-5. (Rynders & Horrobin, 1975) Seattle has an ongoing research unit, the others were short term projects.

In the United Kingdom there is a research project for Down's Syndrome children originating from the University of Manchester. (Cunningham & Sloper, 1978)

All of these programs show significant gains in the children's development. All begin in the first few months of life and involve parent participation.

The consensus of findings from these programs suggest that the essential requirements for effective early intervention are as follows. The program should:

1. Commence as early as possible - preferably in the first months of life.
2. Involve parents in the teaching and decision making.
3. Use a structured framework for curriculum design and teaching.
4. Formulate curriculum objectives around normal developmental sequences.
5. Set objectives and conduct frequent assessment of progress using this information to reset objectives and evaluate teaching techniques.
6. Have a program developed and implemented by an integrated interdisciplinary staff.
7. Ensure that early intervention curriculum material is sequential to the skills required in infants/primary school to ensure maintenance of skills in school.
8. Provide follow-through support for children beyond the early intervention.

In Australia there are two major research programs structured along similar lines to the American and English ones. These are - the Clunies-Ross intervention program for children 0-3, at Preston, Victoria, which includes a large number of Down's Syndrome children - and the Down's Syndrome Program at Macquarie University in New South Wales, both of which are obtaining results similar to the American and English research projects.

Clunies-Ross (1979) demonstrated success with 36 Down's Syndrome infants and young children, involved in an early educational intervention program for up to 2 years. He showed that the development of all the children was accelerated with achievements at and above normal levels being obtained in several cases. His results show that by 3 years of age the Down's Syndrome children were performing at 70-90% of normal performance skills. He also demonstrated the benefits of an early start. Children who entered the program at an earlier age were ultimately superior to later starters. His program focused mainly on children aged 0-3 and involved parents in the training program.

The Down's Syndrome program at Macquarie University also shows the effects of early intervention on Down's Syndrome children who were previously expected to achieve less than 50% of normal skills. This program is for children from 0-5 years, and follows the children (observing their integration) into normal school, supporting them and observing the success of their integration.

The results show that the children at 3 years have an average of 80 to 107% of normal skills. The older class of children aged 4-5½ years demonstrate an average of 71 to 86% of normal skills.

INSERT TABLE 2 HERE

The first children to graduate from this program have entered normal schools and are able to maintain their progress in the normal classroom. They have reading, number, language and social skills comparable to normal children. The progress of these children is being monitored but it is already apparent that the early intervention has made a significant difference to their lives.

As well as demonstrating the effects of early intervention, this research team has investigated curriculum material for early intervention programs. The first need was for a carefully sequenced performance inventory based on the sequences of normal development but including sufficient items to identify the skills of the handicapped child. This performance inventory was repeatedly tested and revised and now forms the core of the curriculum.

Other program material researched and developed includes language, number and reading programs. As a result of this the children at 5 years are able to enter normal school with reading and number skills ahead of their normal peers.

Research with Down's Syndrome children provides the evidence for the effectiveness of early intervention programs. The teaching techniques and curriculum materials developed for them in the Macquarie University program are being used for other moderate and severely handicapped children in schools and programs in all states of Australia and New Zealand.

Future Trends in Early Education of the Handicapped.

The recent developments in early education for the handicapped have been concerned with demonstrating the effects of early intervention. Research has repeatedly shown the significant differences made by early education for both mildly and severely handicapped children. Teaching techniques and curriculum material are being developed and revised. People working in research continue in their search to classify the essential components of early intervention programs, and there is agreement on this in broader terms.

It is clearly demonstrated that early education helps young handicapped children and that the earlier the program commences; the more individualised and structured the program is, the better prepared the handicapped child will be for integration into school and society.

The major problem currently before us is to translate the research programs into effective, well-run, service-delivery programs and to convince legislators to recognize the child's right to this education and to provide the necessary finance for it.

Signposts for Future Developments

Continuing with the original proposition of this paper that current research is a sign post to the direction of future developments could suggest several paths, some of which would eventually lead to new discoveries. One promising direction concerns the contentious issue of the relative importance of the different skills to the development of intelligence. Influenced by their interpretation of the theories of Piaget concerning the development of intelligence in young children, researchers have initially focused on motor development as a means to help intellectually handicapped children.

This has been challenged by others such as Kearsley, Zelazo and Kagan (1975) who seriously question the belief in the treatment of mental development of children 0-3 years by focusing largely on motor development. They say the results of their studies suggest that mental development and motor development may be independent of one another.

This radical departure from generally accepted theories of early development is related to their observations as follows:

1. the low predictive validity of traditional measures of early mental development - measures that rely heavily on neuro-motor performance.
2. the finding of normal mental ability in infants born without arms and legs as a result of thalidomide poisoning.
3. the fact that over 30% of children with cerebral palsy who manifest various degrees of neuro-motor dysfunction are ultimately shown to be intellectually intact.
4. their own experience with the clinical applications of their research procedures which have demonstrated that children labelled developmentally retarded because of delays in the onset of walking and failure to produce a certain number of words - may in fact have age appropriate mental capacities when their mental ability is examined in a more direct manner.

Their conclusion is that there is a large body of research which indicates that infants possess the capacity for sophisticated mental activity independent of motor performance.

One may predict that future developments will continue with comprehensive programming of motor skills, personal and social skills because we are concerned with facilitating the integration of the handicapped child with his non-handicapped peer - in preschool, in school and out of school, and these skills will be important to him. However, possibly more gains in fighting mental retardation may be made by investigating the less obvious infant behaviour of pre-language and the cognitive skills underlying them.

The elusive link between intelligence and language remains, and the current interest in infant language and pre-language skills provides a new field for investigation which promises to be most rewarding.

SUMMARY

In an overview of recent developments and future trends in early education for the handicapped, several prominent facts emerge.

First, the need to recognize the right of all children to the education which they need, and to provide the necessary legislation for this.

Second, the recognition that intervention should be provided as soon as the handicapping condition occurs.

Third, the recognition that the techniques of teaching are available and model programs exist which demonstrate how effective intervention can occur.

Fourth, the need to investigate the problems of service delivery and the best way to involve the child's parents and members of other disciplines in the intervention.

Fifth, the need for continuing research into teaching technology, curriculum development and teacher training.

This last decade has brought hope to the handicapped by showing what can be done with early intervention. The 1980's should see a fulfillment of these hopes with services becoming available to all young handicapped children.

TABLE 1

Estimate of School aged Handicapped Children for Special Education Services

			U.S.A.	GERMANY
A	E.M.R.	1.5	3.0	4.0
	S.L.D.	1.5		
	T.M.R.		.8 (incl. severe)	.6
B	Blind or partial sight		.1	.115
	Deaf		.6	.05
	Speech handicap		3.5	1.5
C	Emotionally disturbed		2.0	1.0
	Physically handicapped Chronically ill		.5	.5
	TOTAL %		10.5	7.765

Percentage of total school population

Ref. Dunn 1973
Schindele 1978

Note: E.M.R. stands for Educable Mental Retardation
S.L.D. stands for Specific Learning Difficulties
T.M.R. stands for Trainable Mental Retardation

TABLE II

Age in years	Gross Motor	Fine Motor	Receptive Language	Expressive Language	Personal/Social
2 - 3¼	85%	107%	92%	79%	91
$3^3/4$ -5½	86%	79%	83%	71%	85

Average Percentage of normal skills attained (Pieterse et al 1979)

Note: Children were assessed on the Down's Syndrome Performance Inventory (Pieterse and Cairns 1979) a set of approximately 550 skills expected of normal children age 0-5 years.

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LANGUAGE PROGRAMS FOR THE HANDICAPPED

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LANGUAGE PROGRAMS FOR THE HANDICAPPED

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Everyone who has lived and worked with young children will remember the extreme frustration that can be experienced when they lack the words to tell you what they want, or what happened or what they just saw. Most children seem to get over this stage fairly quickly. First words usually emerge by the time children are a year old and by two years they are stringing words together meaningfully and have a sizeable vocabulary. But for some children this process is attenuated and the period of frustration extended, with disruptive and even devastating effects on the child and his family or caretakers.

Educators have long been aware of the implications of any delay or disruption of language development in children. Research interest in all aspects of language development, normal and deviant, has grown rapidly in recent years and there are now an increasing range of language programs available for teachers and others to use in helping children, particularly the handicapped, to develop language skills.

This report is concerned with contemporary work on the development of language programs for the handicapped. In the first section, a definition of language is proposed and current theories and research evidence on recent research on language development are reviewed. Finally intervention programs for handicapped and language-delayed children are discussed.

I am working at the Special Education Centre, Macquarie University, where we are interested in developing language skills in children who are mainly at a pre-speech or one word level of development. Therefore, in this report I will concentrate on issues relating to the very early development of language skills in handicapped children.

1. What is language

It is an arbitrary, organized and systematic set of signs (verbal and non-verbal) mutually agreed upon by a speech community and used to represent experience and facilitate communication. Language is seen as a part of communication, and encompasses speech. Morris (1938) distinguished between three aspects of language:

syntax - the relation of signs to other signs
semantics - the relation of signs to the objects they represent
pragmatics - the relation between signs and their interpretors: the conditions under which linguistic signs function adequately

Theories about how children learn language can be classified roughly in terms of their emphasis on one or other of these three points. They can also be ranked on a continuum from an extreme nativist view, with emphasis on syntactic features of language, to an extreme empirical view, emphasizing semantics. This represents another version of the nature - nurture controversy. Current interational theories tend to emphasize pragmatics and are more central of the nature - nurture axis.

11. How do children learn to talk.

(a) Theoretical explanations

1. Nativist theories, e.g. Lennenberg (1967), McNeil (1966), Chomsky (1965). In an extreme form, these theorists argue that language is species - specific; that man has a genetic predisposition to develop language. Evidence of this is demonstrated in the fact that all children learn a language, much as all children learn to walk -- sometimes in spite of severely handicapping conditions, environmental and personal. McNeil (1966) talks of a Language Acquisition Device (LAD) -- a set of unified neurological processes specifically intended for language learning. This enables the child to classify the complex patterns of sounds heard and organize them into a systematic grammar. The child's biological capacity for learning a language is general, and the child's task is to learn the specific language that he hears -- modifying his errors until his speech becomes "adult-like".

This approach does not adequately acknowledge the complex set of skills the child must acquire before he masters a language. Learning to talk is but one part of a larger system by which a child relates to his environment and the people in his world. To suggest that this skill emerges as a result of genetic factors is to oversimplify the process. If this view was followed vigorously it could be argued that children who fail to develop language skills spontaneously lack the genetic capacity to learn to talk. Such a view is unduly pessimistic, particularly in view of results from successful language intervention programs with children who have failed to develop speech at an early age.

2. Empirical Theories e.g. Skinner (1957), Mowrer (1960), Winitz (1967). Here emphasis is placed on inference from objective, observable events and on the Associationist theory of learning. These theorists believe that language is learned through selective reinforcement of random vocalization of the infant, with successive shaping and modelling of sounds, using operant techniques. There is no inate capacity for language -- only an inate ability to form stimulus - response bonds and to articulate speech sounds. Mowrer and Winitz argue that the child imitates sounds that are associated with comfort and are therefore pleasurable -- the "autism" theory.

A major issue related to this theory is the question : does language precede thought : what is the relation of language to cognition? An early theory was the Sapir-Whorf Hypothesis (for a more detailed discussion see Cromer, 1976). This asserted that the language we speak determines the major aspect of our thoughts. Sapir and Whorf cited the European's concept of time - past, present, future - as a product of a language where tenses are clearly marked in words. This compared with the Hopi Indians who did not use tenses and had a very different concept of time. A more moderate version of this hypothesis is that language predisposes us to think in particular ways.

The important issue for these theorists is that language precedes thought and that language can be taught by a series of stimulus - response associations. However, we know that thought is possible without language (e.g. the deaf) and we know that while behavioural technologies can be used to teach both humans and animals to make speech sounds, such methods alone cannot teach a child to communicate effectively. Learning a language is a more complex process than the establishment of S-R connections, though behavioural technology must have some place in learning to talk.

3. Interactionist Theories Piaget (1952), Bruner (1976), Vygotsky (1962). This approach has become increasingly popular in recent years -- particularly since publication of intensive studies of language development by Bloom (1973), Nelson (1973 and Brown (1973). These theorists argue that language develops through interaction of the child with his environment. The child is viewed as an active agent in the language learning process. Cross-cultural evidence suggests that this process is universal across cultures, with similar stages in language development identifiable for all children. Emphasis is on the pragmatic aspect of language, but the importance of syntax and semantics is also acknowledged. McLean and Snyder (1978) outline a transational approach to early language learning that represents an interational position. They argue that Morris' three aspects of language - syntax, semantics and pragmatics - underlie all language learning and that any attempt to stimulate or remediate language development should take account of these. This view seems to represent the current position in language development thinking and research, with a heavier emphasis on pragmatics than had been evident in earlier thinking, but overall an awareness of the equal significance of linguistic and cognitive factors as the child acquires language.

(b) Research evidence

Initially an infant makes a variety of sounds - classifiable roughly as cry, non-cry and vegetative (e.g. burp). While these may appear initially to be broadly indicative of the state of the child - e.g. angry or contented - there is evidence to show that even as early as the 3rd day of life, cries can be accurately differentiated in terms of rhythm and loudness as a "basic cry" or a "mad cry" (Wolf, 1969). The former is judged to indicate hunger; the latter to infer exasperation or rage (excess air forced through the vocal chords when the baby is angry creates turbulence of paraphonation: Truby, 1962: cited Wolf, 1969). Neonate cries also appear to be individual to each child. Morsback and Murphy (1979) recently demonstrated that midwives and adults with and without families, could with equal success discriminate between the cries of individual babies. So while early sounds may appear to be random, it would seem that from birth a child's sounds are ordered in some way and that adults respond to these sounds in a consistent manner.

As he grows, the child exercises increasing control over the sounds he makes. Ricks (1975) showed that by eight months, parents could identify the sounds of their own child, from a set of four, and could also identify the message (request, greeting, surprise or frustration) in the sounds of their own and a small group of other children. It appears that from birth the child's sounds are closely tied to his emotive state and as he grows, cries are used increasingly to express his feelings, using intonation or prosodic patterns consistently to carry a message.

Receptively, neonates from as young as one month respond differentially to speech and non-speech sounds (Eimas, 1971) and to familiar and unfamiliar voices (Friedlander, 1970) Turnure, 1971). By three months babies vocalize differently when their mothers talk to them as compared with when their mothers talk to another adult in the room (Lewis & Freedle, 1973). By eight months infants can discriminate two intonation patterns when they contain normal stress or no stress - though they cannot do this at four months (Kaplan & Kaplan 1971). So as the child grows, he is learning to attend to voices and to listen selectively.

At the same time, the child is becoming increasingly aware of his environment - cognitively. Piaget drew attention to the emergence of sensori-motor intelligence with the achievement of concepts of object permanence, notions of causation and ends and means, and the ability to imitate actions. During the first year the child develops cognitive schema for representing actions and events. This development is critical for later emergence of language. Snyder (1978) compared normal and language-delayed toddlers and found the delayed children lacked the means-end schema on the Uzgiris and Hunt Piagetian based scale of cognitive development. (Uzgiris & Hunt, 1975)

The child is also becoming an active agent in a social setting. He is learning the rules of language performance (linguistic and non-linguistic); turn-taking, rules of address and appropriateness. He is interested in his environment and is developing preferences, demands and motives for action. His behaviour can have an important effect on his mother's behaviour. For example infants can increase maternal stimulation and vocalization by smiling and more importantly vocalizing to her (Bell, 1974; Lewis and Freedle, 1973). Maternal contact can also decrease as a result of infant actions. If a child won't quiet when his mother has tried to soothe him, for example during a period of excessive irritability in the first three months, there is a decline in the rate of maternal attention (Moss, 1967). When a child cries for long periods, mothers are more reluctant to respond to their cries (Ainsworth & Bell, 1974).

The emergence of language and speech is dependent on the adequate development of all these aspects of the child's growth. If any area is impaired, depressed or delayed, the emergence of language will be at risk.

But how does the child move from early sounds to speech? Piaget suggested that language is dependent on the development of sensori-motor schema that represent the outcomes of perception and action. Concepts develop that enable the child to distance himself from concrete objects and events. He learns that a symbol can represent an object, as when a small piece of blanket can represent cot, blanket and sleep. The view that certain cognitive skills are prerequisites for language is widely held today (Sinclair de Zwart, 1973; Morehead & Morehead, 1974). But does this view adequately explain early speech? We know that thought is possible without language. The cognitive view does not adequately account for the act of communication; the need to share information and interests with other people.

Recent research has placed greater emphasis on the place of communication in early speech. This is not to diminish the role of cognition, but to put emphasis on other elements of the model. Syntax is involved in early speech, since it represents a linguistic structure or set of rules that must be incorporated into the child's use of verbal symbols. But of equal importance are pragmatics - comprising both performance rules governing conversations, expectations of response, utterance length and personal individual factors such as intent, preference, motives. In thinking about the emergence of speech, both pragmatic and rules governing performance are relevant, though it may be possible to argue that they differ in significance at different stages in the child's speech development. For example, in early infancy the child lacks the conventional forms and structures of adult language. However, there is plenty of evidence to show that children develop practical knowledge and preferences from observing people, objects, events around them from an early age (e.g. Kagan, 1971). We know from living with babies that they quickly develop affective attitudes towards people and objects (gurgle when mother appears, cry at strangers) and intentions -- strong motivations to obtain desired objects. But how do words emerge? Roger Brown talks about the "original word game" (Brown, 1958). Here the tutor (parent) names things in accordance with the language customs of the community. The player (child) forms hypotheses about the categorical nature of the things named, tests his hypotheses by trying to name new things (or old) correctly and successively adjusts his attempts until they begin to elicit an expected response. According to Brown the child must:

1. learn to categorize speech so that he can identify equivalent, consistent patterns in what the tutor utters. Learn to listen.
2. Learn the motor skills so that he can produce utterances that are recognizable by the tutor.

3. Form reference categories like the tutor's so that he can make hypothesis about categories of things/events and the sound sequences that relate to them.

The important elements in this sequence are that the child must make hypotheses about :

- cognitive categories
- distinctive sounds and
- category - sound relations

For greatest success, the word game should take place in a consistent setting, with consistent tutor/student and consistent content.

A superb example of this process is the clown game described by Ratner and Bruner (1978). However, this explanation of the strategies underlying the word game puts undue emphasis on the cognitive schema required in the game and does not take adequate account of the place of intent or performatives (Bates, 1977) in the language game. These include sound patterns and non-verbal actions expressive of the attitudes, intentions preferences of the child, and of his growing awareness and responsiveness to intonation patterns and other non-verbal indicators of attitude or intent in adult speech. Dore (1973) and Bruner (1976) define communicative intent as the inducement in a listener of the speaker's expectation. This involves referring, joint action and predicating.

In the original word game the child is learning to refer - develop a taxonomy of objects that are encountered very often in established game situations with a limited set of adult members of his linguistic community. This involves (according to Bruner):

1. joint attention and indication: there is evidence of gazing at the eye region of mother's face in the first months of life (Bruner 1976 ; Wolf, 1969) infants can follow their mother's line of regard from as early as four months and mothers tend to follow the line of infant gaze (Collis & Schaffer, 1976; Scarfe & Bruner, 1975).
2. highlighting special features of the situation to aid in joint reference as when mother brings the object close, shakes the rattles (Kaye, 1976) and
3. naming: the final use of standard words to signify the object.

In joint action, with an adult, the child moves from his initial "demand" mode (e.g. hunger cries) to an "exchange" mode, that involves reciprocal actions. At first the child will initiate an action (drop teddy) and when it is returned, drop it again. This will develop into a game that can be repeated endlessly. This is gradually modified into a "reciprocal" mode, with mother and child able to exchange roles in the game e.g. "boo" with mother or infant able to take the surprised or surpriser role. Bruner (1975) described an exchange game in which the start was indicated by the mother saying "look" when giving and "thank you" when receiving objects. The child first used the phrase "thank you" when both giving and receiving, but subsequently was able to use both "look" and "thank you" in appropriate conditions.

Finally, the child must learn to predicate - to become an active agent in communication, able to draw a listener's attention to explicit aspects of topics of joint interest. Wall (1974) found that children use longer utterances when talking with strangers than when talking with parents. In a familiar context, we do not need to refer explicitly to details of topics of joint concern. Bruner suggests that early forms of predication are emerging when the child redirects his gaze or vocalizes to mark significant points (for him) in a joint routine -- for example an exclamation when the block tower topples or when the face reappears in a game of "boo". Later this develops into the ability to draw a stranger's attention to something of interest to the child.

So what points should be added to the list developed from analysis of Brown's original word game? The over-riding issue would appear to be that language learning is embedded in joint activity with adults who have frequent contact with the child, using materials and events that actively interest the child. Taking Brown's list and expanding it, the following points appear to have significance in the emergence of speech.

The child must:

1. Learn to listen and differentiate sounds heard.
2. Learn to make sounds consciously.
3. Learn to act reciprocally.
4. Learn to attent to objects/events in the immediate setting.
5. Learn to mark, cognitively, significant specific features of situations.
6. Form joint reference categories with an adult.

7. Make and test hypotheses about adult category/sound relations.
8. Become an active initiator in a communicative sequence.

Children usually master these skills and produce their first words between twelve and eighteen months, but there is plenty of evidence to show that of all the skills children with developmental difficulties must acquire, language is the most likely to be affected, with delay and disruption in the learning sequence reflecting the degree of impairment in the child. However, there is also research evidence (Lennenberg, 1967) to support the assumption that children with a range of developmental difficulties move through the same sequences as normal children, in learning to talk, but at a slower rate. In view of this, what are the implications of the learning process just described for language programs for handicapped children?

III Language programs for the Handicapped

The issues to be considered here include:

1. *Who* will have problems in learning to talk.
2. *When* should help be given.
3. *What* should be taught.
4. *How* should it be taught.
5. *Who* should be the teacher.
6. *Where* should teaching occur.

I will propose an answer to each of these questions, based on the material presented earlier in this paper; on research evidence on language training with handicapped and language-delayed children, and on experiences gained during the setting up on training programs for such children in the Special Education Centre at Macquarie University.

1. Who will have problems in learning to talk.

   Any interference in the processes underlying language development, is likely to cause a delay in the emergence of speech. This could include:

Within subject variables:

1. Difficulty in any of the sensory processes - particularly hearing.
2. Impairment of motor functioning - speech mechanisms could be affected.
3. Diminished mental ability - there is a high correlation between IQ and language delay.
4. Inadequate or impaired development of motivational factors in the child - extreme emotional disturbance can interfere with language development.

Environmental variables:

1. Inadequacy or inconsistency in setting - there is evidence that children can develop speech in extremely deprived conditions.
2. Lack, or severe restriction of experience with objects and events.
3. Lack of consistent adult caretakers.

It would be difficult to rank these factors in order of significance but probably the within - subject variables are of first order importance and difficulties in any of these areas would impair the child's ability to relate effectively to his environment. Certainly if there is any impairment in the basic pre-requisites for language, the child will be at much greater risk for failure if there is any inadequacy in the environmental variables.

2. When should help be given?

As soon as any impairment in the basic skills is suspected, steps should be taken to overcome the impairment, and to optimize the environmental variables in the child's world. Is there an optimum time for language intervention to begin? Future research may answer this question.

3. What should be taught?

There is controversy about this. Some argue that intervention should be based on a developmental approach, on the assumption that all children move through the same steps in learning a language, but with varying time between stages. The contrary view is that in remediation a different strategy should be used, with content selected according to some other model, -- for example, a functional language model that emphasizes the need to gain some improvement in the child's communication skills as quickly as possible. Fristoe (1976) in his survey of published language programs listed six model alternatives: developmental, cognitive, behavioural, information processing, functional and medical.

Arguments can be found to support both sides of this controversy. Probably the final decisions for programming that are derived from any model will not differ markedly if they are based on very careful assessment and observation of the language-delayed child himself and his particular needs and interests. This implies that language intervention involves more than straightforward administration of a predetermined program.

It also implies that children with language problems are not different from other children -- only that they have varying degrees of difficulty in acquiring a particular skill -- oral communication.

Content of a program for a language delayed child will depend on the developmental level of the child in terms of the three aspects of language identified earlier: semantic, pragmatic and syntactic. McLean and Snyder (1978) note that all utterances include elements of these three aspects and when planning an intervention, care must be taken to consider all three in any language goal. For example, at the preverbal level, from the skills listed earlier, the major tasks for language learning can be classified as:

Semantic:	Learning to attend to objects/events e.g. things that move.
Pragmatic:	Learning to act reciprocally e.g. take turns in a game.
Syntactic:	Learning to listen and make sounds e.g. da-da.

These skills are probably best trained in a play setting, using a high interest game that involves reciprocal action between parent and child.

At the one and two word stage, the child must:

Semantic content

Acquire the words needed to "map" his knowledge of objects and events in his world. Initially these will be (Nelson, 1973)

Specific & general nominal words	objects animals people
action words	demand description
modifiers	state locative

personal/social	assertions social expressive
function words	questions

Pragmatic content

Learn the rules governing the use of language in context.

Bates (1976) defines this as including:

propositions	referring to an object/event
performatives	making demands, asking questions
presuppositions	conditions necessary for a word to be appropriate in context. (Children often presuppose that we know what they are talking about)
conversational postulates	assumptions made between people who talk together about agreed rules of talking, e.g. in appropriateness of some topics at certain times, assumptions about honesty, rules of politeness.

Syntactic content

Learning to form sounds accurately - to use single words. At the two word level - the syntax/structure aspect becomes significant - as the child learns to combine word classes in a predictable order that represents the meaningful relationship that he has experienced between the word classes; e.g. initially the child will combine action-object, agent - action, agent - object words and will then begin to add more words to represent location, negation and the modifiers : possession, recurrence and attribution. These consistent patterns of word combinations that represent experience of object - action - attribute interaction have been termed "semantic - grammatical rules". Recently published language programs (e.g. Miller & Yoder, 1974; MacDonald, 1974) have outlined strategies to train use of these rules in their programs for children entering the two word production stage in language development.

When setting up a language program for a child, the first step will be to assess the child to find out what communication skills he has, and then to select appropriate goals for training. McLean and Snyder reviewed assessment materials available in the mid 70's in the U.S.A. and came to the conclusion that while standardized tests can be used for initial screening of the children, none provide adequate prescriptive data on which programming can be based, particularly at the very early levels of language development. Some language programs have an in-built test for identifying levels for training, but where no appropriate test is available careful observation of the child in his normal setting and collection and analysis of a language sample, if appropriate, can be used to set language goals.

If decisions have to be made regarding content of language programs, research can provide data on materials that are most likely to be appropriate. For example at the pre-verbal stage, across all cultures, (Bloom, 1973; Bowerman, 1973) entities that move and change or the child can act upon are more likely to be conceptualized and labelled. than static objects (Nelson, 1973; Anglin, 1977) e.g. disappearance (gone) recurrence (more) falls and bumps (fall down, oh-oh) directional motion (off, down, up) and transitory states (hot, wet) (Bowerman, 1978).

Many published language programs also include ideas on activities that may be appropriate for the child at the pre-verbal or one-word stage, for example: Cooper Moodley & Reynell (1978) Jeffree & McConkey (1978) Horstmeier & MacDonald (1978) and Rees & Pickering (undated). However, the important issue is to train skills the child will need using activities and materials of high interest to him.

Training should begin at the point where new skills are emerging. For some children this means training begins with social-interactive play. With older children, training may focus on increasing the range of single words, since handicapped children often learn labels for objects but are slow to acquire action words. In the program described by Horstmeier & MacDonald, specific content for training each child is selected during consultation between trainer (usually parent) and special education teacher or program co-ordinator. This ensures that selected content is relevant to the child and newly acquired skills are maintained naturally by frequent use in daily living.

4. How should language skill be taught?

There is considerable research evidence on how mothers teach their normal children to talk, and some date on how handicapped and language dealyed children learn to talk.

Apparently parents address as much speech to their pre-verbal children as to children who are talking, (Ling & Ling, 1974) but utterances addressed to younger children are shorter (Nelson, 1973) and less complex (Brown 1973). Both parents and non-parents tend to paraphrase and repeat words directed to children (Friedlander, Jacobs, Davis & Wetstone, 1972; Snow, 1972) and it is assumed that strategies such as these -- length reducation, complexity reduction, repetition and para-phrasing -- are significant elements in the language models that parents provide for children. But is the language of parents different to their handicapped and non-handicapped children? Buim, Rynders & Turnure (1974) showed that mothers used more, but shorter utterances to their Downs children than to their normal children, but Marshall, Hegvernes & Goldstein (1973), comparing mothers of normal and retarded children, showed that the retarded children heard more commands, demands, requests and questions than their non-retarded peers, though the amount of mother to child talk was the same.

Can mother's talk to a handicapped child to modified to increase the language skills of the child? There is evidence that this can be done. Hetenyi (1974) reported on intervention with a mother and her language-delayed child. The intervention consisted of instruction and demonstration to the mother on ways to talk to the child. When mother increased her use of models - supplying words for the child but not specifically indicating that the child should say the words, and at the same time reduced her use of questions and commands, the child's rate of word use increased and his whining disappeared. Whitehurst, Novak and Zorm (1972) also showed that when a mother talked to her language-delayed son, his highest rate of new word production followed her high use of prompts (labels for something in environment paired with an indication that the child should say the word) together with high rate of conversation (this included all utterances except questions).

Seitz (1975), reporting research with mothers of mentally retarded children, argued that verbal interaction is more important than verbal stimulation to produce language skills in children. Seitz showed videos of clinicians working with children and from these observations mothers learned to modify their speech to their children - to decrease their rates of questions and commands and let their comments follow the play interests of the child. These changes tended to be accompanied by an increase in the mean length of utterance and number of utterances of the children.

Cross (1976) looked at mothers of advanced language 2 year olds and normally developing (for language) two year olds and found differences in the mothers speech to their children:

The mothers of advanced children -

- spoke more slowly, clearly and fluently
- repeated parts of their own previous sentences more often
- used less complex syntax, more frequently elaborated or expanded the meaning of the child's utterances
- used conversational styles that allowed the child to take his turn more often than did the mothers of the slower children.

Some aspects of these strategies may have helped the children to learn to talk more easily. Cross then compared the talk of mothers of "normal" children with mothers of "language-delayed" children of the same linguistic age. She found a significant difference in the level of intelligibility and disfluency of the "language-delayed" mothers. These mothers also addressed fewer utterances to their children and talked faster. When the mothers talked to their normal two year olds their rate of talk and disfluency was still greater than the other mothers. Is there any evidence to show that these factors can be modified in mothers? Cheseldine and Melonkey (1979) attempted to modify the language skills of parents of handicapped children. In a recent study they took Downs children at the one and two word stage and gave their parents language objectives to work towards and a set of play materials (picture bricks or a family of rag dolls). Parents were asked to play ten minutes on four occasions over a 2-week period while targeting four words. On the basis of results of this training children were divided into two groups - the "improvers" and "non-improvers". Analysis of parental language from baseline to final session showed that successful parents decreased their mean length of utterance significantly and used significantly fewer words than the less successful parents. The successful parents also tended to increase their use of statements and decrease their use of questions while the non-successful parents showed the reverse pattern.

In a second study, half the unsuccessful parents were trained to modify their speech in accordance with the strategies used by the more successful parents. Parents were told to:

a. describe what they were doing or what the child was doing and to model the target sentences of words clearly - using repetition and paraphrasing.

b. give information in the form of statements, rather than use a high proportion of demands and questions.

c. use shorter, less complex sentences.

d. regulate the amount they talk, taking care to allow the child a chance to initiate interactions.

e. take the child's lead, and talk about the theme he introduces, giving appropriate feedback.

Results of this study showed that it is possible to modify parental language to improve handicapped children's speech and that some parents need help to adopt more appropriate language teaching strategies.

Cheseldene concluded that while parents seem able to modify their speech to provide appropriate models for normal infants, the development of retarded children may be delayed to a degree that parents are less able to judge the level of language appropriate to stimulate development of their handicapped children. Moreover when children demonstrate a difficulty in acquiring language through their normal environment, more specific skills may be needed to stimulate development. Hence there is a need to pinpoint appropriate goals for parents of language delayed or handicapped children and to give these parents specific skills that are known to facilitate language development.

Traditionally three strategies have been viewed as important in remedial language training - imitation, expansions of child language and contingent reinforcement.

After reviewing the literature on imitation, Moerk (1977) concluded that children first acquire some comprehension of a grammatical form and are then able to selectively imitate it. Apparently children will first imitate the form of an utterance - not necessarily the content. Imitation and spontaneous production will then follow concurrently until the form is mastered and imitation will cease as the child learns to use the form in spontaneous production.

Training in imitation has been used as an important strategy for developing speech in the language research project begun at the Special Education Centre in 1979. With younger children, training began with imitation of motor skills and sounds, moving at a later stage into imitation of appropriate words and phrases. Imitation was encouraged by use of cues and prompts rather than demands, with training embedded in games and activities of high interest to the child. Opportunities were provided for the child to use targeted activities, sounds and words without a model as soon as it was demonstrated that no prompt was required. In general, the Horstmeier and MacDonald (1978) imitation - conversation strategy was followed, with introduction of the conversation-imitation-conversation sequence once the child had begun to use the targeted language. Overall, imitation appears to have an important function in language acquisition, though at the pre-verbal stage it is mainly a strategy for helping the child acquire new skills by directing his attention to significant stimuli. However, children appear to be most likely to imitate sounds and actions that are highly significant to them. This is in accord with Moerk's finding that children will imitate forms they comprehend. So within this constraint imitation appears to have a place in teaching children to talk.

Expansion of child utterances has been viewed as a successful strategy for developing child language skills, (Brown & Belluge 1964; Ervin-Tripp, 1973) but recent research has shown that this type of expansion represents only a very small proportion of speech behaviour in adults talking to children (Friedlander et al., 1972; Nelson, 1973).

Assumptions that adults provide contingent reinforcement for effective language development is also unsubstantiated. Nelson (1973) showed that reinforcement by parents was inconsistent or when given was more related to the truth value of an utterance than to its linguistic quality (Brown and Hanlon, 1970). Hubbell (1977) in his review of strategies that facilitate spontaneous talking, reported a study of families by Patterson and Cobb (1973). Data suggested that some activities facilitate the likelihood of talk -- others do not. Commands, questions and straight approval or disapproval were not likely to be followed by talk -- i.e. they constrain or inhibit talking. It was hypothesised that talking associated with ongoing activity was more likely to facilitate speech, but data on this was not collected in the Patterson and Cobb study.

What are the implications of this discussion for language training?

a. First assess a child to identify what pre- or early language skills are emerging. Decisions about what to train among these skills will be based on one's preference for a developmental or a remedial program. At present there is no clear evidence to support other than a developmental approach to language training, though a remedial program may be more appropriate for severely and profoundly retarded non-verbal adolscents and adults.

b. Next, select specific goals to target during training - up to 10 words or actions at a time. Learning should also be monitored, so that goals can be changed when learning has occurred. Parents can be taught to monitor their teaching daily in the early stages of training and to record emerging words and phrases in the early one and two word stage.

c. Relatively non-constraining strategies should be used in teaching, with a low use of demands and questions and a high use of simple statements and models for imitation of appropriate action or speech. There appears to be a place for loosely-structured imitation training as a teaching strategy, with low-key cues and prompts. While this is an issue on which further research is needed, it appears to be a powerful means for getting the behaviour of the child under the control of the language trainer. It would also appear that strict behaviour reinforcement procedures, in a formal training session, are less effective in encouraging speech than a loosely structured "play" training session with language goals carried over into the normal life of the child. Under these conditions there are no problems about generalization of emerging skills since from the start the child is using them at all appropriate times during the day.

d. New training goals should be selected when there is clear evidence that a child has acquired the skills that are being trained. Use tape recordings if appropriate to monitor language use or teach mother or trainer to use a check system to record rate of use of targeted skills.

5. Who should be the teacher?

Traditionally, language training has been the responsibility of speech therapists or clinicians. However, there is increasing concern (e.g.Siegel & Spradlin, 1978; Miller & Yoder, 1974) that language skills trained in a highly structured setting such as a clinic, do not generalize to the child's natural environment. Since the aim of language training is to develop skills in social communication, it seems natural to use parents to establish effective communication skills in children with language problems, since it is parents who are the significant adults in greatest communicative contact with the child. Where children are in school for part of the day, their training should also be carried on by teachers. Ideally, there should be continuity between home and school, with current language goals targeted in both settings. In the language program we have been trialling, notes are pinned on refrigerators to remind all members of the family to use targeted language strategies, and notebooks are sent between home and school, as appropriate, to keep all informed on the language program.

Various projects have now reported success in helping parents develop the language of their handicapped children (MacDonald, 1974; Rees, 1978; Cooper, Moodley and Reynell, 1979). There is now good evidence to suggest that where possible, parents should be helped to use their natural skill as language trainers more effectively to teach their handicapped children to communicate. Professionals, including speech therapists or special education teachers where appropriate, should function as resource personnel to help parents rather than acting alone as primary intervention therapists in the early stages of training. Such a strategy as this will ensure that all handicapped children will have appropriate communication experiences as part of their daily living.

6. Where should language training take place?

The answer to question 5 above assumes that the most effective place for language training is the natural, daily environment of the child -- home, or school. When training takes place in a natural setting, there will be few problems in generalization of skills across settings. Parents or teachers should select a regular time and place for language activities, allowing for the daily activities of the family, sleeping and eating habits of the child and his interests. Training has been set in play room, bedroom, kitchen - anywhere that suits mother or teacher and child.

Published Language Programs

Various lists of published language programs are available (e.g. Fristoe, 1976; McLean & Snyder, 1978) and a number have also been published in journal articles and books. Each program can be useful for some groups of children, and elements of programs may be used for particular training needs with specific children. But as suggested earlier, no program is likely to satisfy the varied needs and interest of individual children, and language training for the handicapped should involve more than straightforward administration of a pre-determined program.

With all the research and study that has been reported in recent years on language intervention for handicapped children, there are still many questions unanswered regarding the best methods to use to help all children to communicate effectively as early as possible. In this report, current trends in the field of language intervention have been identified and strategies described that seem most likely to help children move from their first cry to social communication.

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LEARNING TO READ : THE PRESENT DEBATE

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LEARNING TO READ : THE PRESENT DEBATE

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In her book "Learning to Read: The Great Debate", Jeanne Chall (1967) raised a number of issues related to early reading instruction. She concluded that all of the issues could be collapsed into one big question:

> "Do children learn better with a method that emphasizes meaning or with one that emphasizes the code?"

After reviewing all the major research on reading methods which had been published between 1910 and 1965, her answer to this question was that:

> "...early stress on code learning ... not only produces better word recognition and spelling, but also makes it easier for the child eventually to read with understanding - at least up to the beginning of fourth grade." (p 83).

While this statement would appear to support the code-emphasis approach, I must draw your attention to the fact that most of the studies she reviewed were methodologically unsound. Indeed, Chall herself conceded that "most studies were unsatisfactory in some respects" (p 101), and indicated throughout her book that:

> "...too much of the research was undertaken to prove that one ill-defined method was better than another ill-defined method." (p 314).

The strength of her conclusion is obviously weakened by these limitations.

Results contrary to Chall's were produced by Ruddell (1968) who carried out a two-year longitudinal study of four reading programs. He found that while the code-emphasis approach resulted in superior achievement at the end of first grade, significantly higher achievement was obtained from a meaning-emphasis approach at the end of second grade.

To complicate matters further, Bond and Dykstra (1967) concluded from their review of twenty-seven first-grade studies that the variation in reading achievement within a method was greater than the variation in achievement among methods. In other words, no single method consistently produced good readers; all methods produced both good and poor readers. Clearly, factors other than reading method influence a child's reading ability.

But that is all history. What is the present debate and how does it differ from the past debate?

Today, the great debate still rages, albeit under a different guise. The present debate is not between meaning-emphasis and code-emphasis approaches, but between psycholinguistic and behaviourist approaches. It is not difficult to find references supporting each approach, but it is difficult to find balanced accounts of the two approaches. It is the purpose of the present paper to try to fill this gap.

Psycholinguistic Approaches

Psycholinguistic theory has had a tremendous impact on reading education over the last decade. Here in Australia, for example, there are at least six Colleges of Advanced Education[1] which offer post-graduate courses based on psycholinguistic theory, and the under-graduate courses on reading at this University have a psycholinguistic orientation. The K-12 document recently published by the N.S.W. Department of Education also draws heavily on psycholinguistic theory.

What is the psycholinguistic approach and what relevance does it have for teaching children with reading problems?

Firstly, it should be stressed that the psycholinguistic approach derives from the psycholinguistic theory or model of how a child learns to read; it is not a kit, or a program or method of reading instruction. Language experience approaches such as Breakthrough-to-Literacy could be described as psycholinguistic, as could reading materials based on children's natural language, such as the Ready-to-Read Series and the Mt Gravatt readers. Individualized instruction, which has been promoted in Australia by Don Holdaway (1972, 1979), is also consistent with psycholinguistic theory.

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[1] Canberra (ACT); Claremont (WA); Kuring-gai (NSW); Milperra (NSW); Riverina (NSW); Toorak (Vic).

The doyen of psycholinguistic theory is undoubtedly Noam Chomsky (1965); his chief interpreters, Kenneth Goodman (1967, 1969, 1970, 1973, 1977) and Frank Smith (1973, 1975, 1978). In the present discussion, I have decided to limit myself to Goodman's work - but strongly advise you to read Smith's thoughtful and readable texts listed at the end of this paper.

According to Goodman, reading is "a psycholinguistic guessing game" which involves an interaction between thought and language. Efficient reading does not result from precise perception and identification of all elements, but from skill in selecting the fewest, most productive cues necessary to produce guesses which are right first time. The ability to anticipate that which has not been seen is vital in reading.

Three sources of information are available to the reader: graphic; syntactic; and semantic. It is knowledge of the syntactical structures and meaning which enables the reader to anticipate that which has not been seen. What readers think they see is partly what they see, but largely what they expect to see. As readers become more efficient, they use less and less graphic input.

Take the following example:

"The captain ordered the mate to drop the an....".

Syntactic knowledge tells us that the missing word will most likely be an adjective or noun, while semantic knowledge tells us that the captain and his mate are sailors. We sould only need to resort to graphic cues if we did not have the necessary syntactic and semantic knowledge.

There is a certain amount of empirical support for this theory. Paul Kolers (1970), for example, cited a number of psychophysical experiments on mature readers which indicated that recognition of words does not result from piecemeal recognition of letters. If we were to read letter by letter, we would only be able to process three letters per second. Now if the average word length is six letters, this is equivalent to a reading speed of only 30 words per minute! Yet we all read about 250-300 words a minute. We obviously are not reading every single letter. This observation led Kolers to comment that "reading is only incidentally visual".

But what about beginning readers? Is it the same for them? Marie Clay (1968), the Professor of Education at Auckland University, demonstrated that even beginners rely more heavily on syntactic information than on graphic information. In her study, which was a forerunner in the field, Clay analyzed the reading errors of 100 five-year-old children. She found that 79% of their substitutions were grammatically acceptable, while only 41% of the substitutions corresponded to the visual characteristics of the test. Koler's maxim clearly has wide applicability.

While Goodman's theory is quite well developed and makes a great deal of sense, his practical implications are little developed in terms of classroom realities. This is despite the fact that he wrote specifically for teachers and always regarded his research as being of practical value to teachers. The Reading Miscue Inventory developed by his wife Yetta Goodman and Carolyn Burke (1972) provides a wealth of diagnostic information about a child's reading strategies, but is much too complicated and time consuming for the ordinary classroom teacher. Furthermore, if a teacher were heroic enough to use it, he/she would find no prescription as to what to do with the information thus obtained. This is because Goodman paid more attention to the process of reading than to the teaching of reading. Like Frank Smith, he believed that effective teaching was dependent on an understanding of the reading process.

Nevertheless, some general principles may be derived from Goodman's theory:

1. Children should be provided with reading materials that allow them to utilize all three sources of information at once. This can only be achieved through continuous prose; isolated letters and words are ruled out because one has to rely entirely on grapho-phonic cues in order to read them.
2. There is no strict hierarchy or sequence of subskills which needs to be taught. Children learn to read through reading natural prose.
3. Because of the primacy of syntactic and semantic cues, grapho-phonic cues are only of peripheral concern. Decoding print to sound is definitely de-emphasized.
4. Pronouncing of words or word calling is not reading. Reading is determined by the child's ability to obtain meaning from the printed page. If a word is decoded incorrectly but retains the correct meaning, then this so-called miscue is overlooked.

Take the following example:

Text:	One evening when he came home from work he said to his wife.
Fred:	One evening he comes home from work and says to his wife.
Tom:	One evening were he came home from walk he said to his will.

Fred has made four errors (miscues) whereas Tom has made only three. Fred, however, is the better reader because his translation is grammatically and semantically acceptable.

Given Durkin's (1978-79) recent finding that comprehension is seriously neglected in reading instruction, Goodman's emphasis on meaning must be regarded as the major strength of his approach.

What relevance does all this have for teaching children with reading problems? Goodman did not differentiate between beginning readers and fluent readers, ergo, poor readers are no different from beginning readers. In other words, he regarded his approach as having universal application. The fact that he saw his approach as being appropriate for children with reading difficulties is evidenced by the development of the Reading Miscue Inventory. This is a diagnostic instrument, the purpose of which is to determine why a child is not reading efficiently.

Critics point out that the psycholinguistic approach, as opposed to theory, lacks empirical support; that is to say, its superiority in teaching reading has not been demonstrated. One must be reminded, furthermore, that Goodman's theory is derived mainly from fluent reading and that his miscue analysis can be applied only to children who have acquired some basic reading skills. In short, I am not yet convinced that his theory has relevance for teaching children with serious reading difficulties. This is not to say that I am opposed to his approach in toto. On the contrary, I think it has a great deal to offer the vast majority of readers. But evidence as to its effectiveness with retarded readers is lacking. His adherents would, of course, add that such evidence will be provided in the future.

Behaviourist Approaches

Behaviour theory has also had a tremendous impact in education, especially in Special Education. It is, for example, the mainstay of all special education courses here at Macquarie, and also at Newcastle C.A.E.

The leading proponent of the behaviourist viewpoint is, of course, B.F. Skinner (1957); his interpreters are too numerous to mention. They would include, for example, Arthur Staats (1968), and Wesley Becker (1977) who opened this conference.

What is the behavioural approach and what relevance does it have for teaching children with reading problems?

The application of behaviourist principles to reading instruction takes many forms, as does the application of psycholinguistic principles. Approaches which conform to behaviourist principles include direct instruction, precision teaching and performance determined instruction.

The behaviourist approach is, strictly speaking, atheoretical. That is to say, its development is based on the results of empirical research rather than theory. Nevertheless, it does adhere to certain elementary learning principles. In reading, these principles are as follows:

1. The order of material presented to the child is carefully sequenced from the simplest to the most complex, and invariably starts with the discrimination of individual letters and progresses to syllables, words, phrases and sentences.
2. The child is required to achieve mastery at each level before progressing to the next level in sequence.
3. Correct responses are reinforced. The reinforcers may be money, tokens, points or praise. Back-up reinforcers include toys, sweets and privileges.
4. A correct response is defined as the correct pronunciation of a letter or word.
5. Progress is carefully monitored on a daily basis.

Support for this approach obtains from numerous short-term experiments on small groups of retarded readers in laboratory-type settings. (e.g. Hamblin & Hamblin, 1972; McKerracher, 1967; Staats et al 1964, 1965, 1967, 1970; Whitlock & Bushell, 1967; Willis et al 1972; Winefield, 1977). Although the approach is not based on a coherent theory of the reading process, it achieves credibility because it "works".

Critics of the approach point out that:

1. There is no known hierarchy of reading skills. By imposing an artificial hierarchy on the reading process you inevitably include skills that are unimportant and exclude skills that are important.

2. Pronouncing letters and words is not reading as it does not involve comprehension. The approach can only be regarded as successful in terms of developing a low level skill; its effectiveness in teaching children the higher level skill of reading comprehension has not been established. Indeed, the failure of decoding training to improve reading comprehension was demonstrated recently by Fleisher et al (1979).

3. The use of small groups of children in laboratory-type settings has little application to the normal classroom.

Conclusion

How to balance the accounts? A comparison of the psycholinguistic and behaviourist approaches is presented in Table 1. From this table, it is plain to see that the two approaches are diametrically opposed on most issues. Do they have anything at all in common? The only point of agreement I could find was that they both support individualized (as opposed to group) instruction. But then they disagree about the way such instruction should be implemented.

INSERT TABLE 1 HERE

Both approaches have their limitations, of that there is no doubt, so how does one decide between them? Or indeed does one have to decide between them? This decision may be easier to make if we look outside the area and consider some of the studies which are unrelated to the psycholinguistic vs. behaviourist controversy.

The first study I wish to draw your attention to is one I mentioned at the beginning of this paper. This is the Bond and Dykstra (1967) study which showed greater variation in reading achievement within methods than between methods. Although Bond and Dykstra were referring to meaning-emphasis vs. code-emphasis approaches, there is no reason to expect different results from a comparison of psycholinguistic and behavioural approaches. To assume that method alone will solve all your reading problems is to ignore all the other factors contributing to reading achievement, such as the child's verbal ability, social class and family background, and the teacher's expertise in teaching reading. While it is very difficult, if not presumptuous, to alter a child's home environment, it should be possible for teachers to improve their teaching skills. The implication of Bond and Dykstra's findings, therefore, is that the right approach to reading instruction is the approach that is taught well.

The second study I would like you to consider is that of Rebecca Barr (1974) who investigated normal children learning to read in the natural environment. She found that the dominant strategy used by children when they were learning to read was largely determined by the type of reading materials used in instruction[2]. For example, if meaning-emphasis materials were used, the children tended to rely on contextual cues (as opposed to graphic cues) in the initial learning phase. But the children differed in the manner in which this dominant strategy was used and refined. During their first year of instruction, average and good readers showed increasing attention to graphic cues and were able to coordinate the use of graphic and contextual cues. In other words, they learnt to use strategies other than the one they were being taught. Children of low reading ability, on the other hand, showed little increase in attention to graphic cues or coordination of graphic and contextual information. That is to say, they fixated on the strategy they were being taught. If one accepts these findings, then the inference is

[2] Clay's (1968) findings which were referred to earlier in this paper, do not conflict with those of Barr (1974). Clay's five-year-olds, who relied heavily on contextual cues, had been taught by the Ready-to-Read series: a meaning-emphasis approach.

that a psycholinguistic approach - which emphasizes meaning and de-emphasizes phonics - is appropriate for average and good readers, while a behaviourist approach - which presents carefully sequenced sub-skills - is more suitable for poor readers. If average and good readers learn their phonics incidentally, there is no reason why they should be subjected to systematic instruction of every subskill. Conversely, if poor readers do not learn their phonics incidentally, they obviously need to be taught each subskill systematically. According to this study, therefore, the right approach to reading instruction depends on the type of child you are trying to teach.

The third and final viewpoint is that of Gibson and Levin (1975). Like Goodman, they believed that three sources of information were utilized in reading: syntactic, semantic and grapho-phonic. Like Goodman, they also believed that a child should be given simultaneous training in utilizing all three types of information. For this reason, they recommended the *sentence* as the minimal unit in reading instruction. But unlike Goodman, they placed considerable emphasis on phonics. They argued that when children start school, they can already utilize information gained from syntactic and semantic constraints. The one source of information they *cannot* utilize is grapho-phonic relationships. Gibson and Levin therefore emphasized spelling-to-sound correspondences *as well as* contextual cues in their experimental program for beginning readers. In the case of children with reading problems who are weak at *both* decoding and comprehension (Perfetti & Hogaboam, 1975), this approach has much to recommend it. If we were to accept Gibson and Levin's model, therefore, the right approach to reading instruction would lie neither with the psycholinguistic nor behaviourist camp, but somewhere in between.

As you can see, there is no clear winner in the present debate, just as there was no winner in the past debate. This is not surprising, for it is regarded that research on teaching is still in its infancy (Brophy, 1979). But as teachers, you cannot wait until such research reaches maturity. You have a classroom of children demanding to be taught now. It seems to me that the approach you adopt will depend on your understanding of the various theories, the type of children you are teaching, and your own particular teaching style. Having made your decision, keep an open mind; be aware of the limitations of your own approach and the advantages of the other. If, for example, you adopt a psycholinguistic approach, what are you going to do if you cannot maintain the child's attention? I see no reason why you should not borrow from behaviourist theory and reinforce on-task behaviour.[3] Likewise, if you adopt a behaviourist approach and find the child is concentrating on decoding at the expense of meaning, why not borrow from the psycholinguistic repertoire and reinforce meaningful responses instead of accurate responses? In short, the psycholinguists tell us what to teach; the behaviourists tell us how.

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[3] My criticisms of behaviourist approaches to reading instruction do not apply to behaviourist approaches to classroom management.

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TABLE 1

Comparison of the two major approaches to reading instruction

	Psycholinguistic	Behavioural
Theory	Well developed: based on a coherent theory of the reading process.	Atheoretical: based on empirical evidence.
Reading Process	Holistic: reading viewed as a total language process which cannot be broken down into component parts.	Atomistic: reading like any other skill, can be fractionated for the purpose of instruction.
Emphasis	Meaning: concerned mainly with reader's ability to obtain meaning from the printed page. Inaccuracies in decoding the printed word overlooked if precise meaning of passage is retained.	Decoding: concerned mainly with the reader's ability to decode or pronounce the printed word. Comprehension of passages of print is de-emphasized.
Practical Implications	Little developed: lacks clearcut prescriptions for classroom instruction. In the hands of a poor teacher, this approach could be ineffective.	Well developed: offers a precise set of guidelines for the teacher. Would be a boon to the inefficient or incompetent teacher.
Teacher's Role	Facilitative: teacher provides a literary environment which facilitates normal reading development.	Direct: teacher directs almost every aspect of child's reading development.

	Psycholinguistic	Behavioural
Motivation	Interest: motivation gained from child's interest in the written material.	Reinforcement: motivation ensured through immediate and systematic reinforcement of correct responses.
Materials	Continuous prose: Children learn to read by reading fully formed language.	Letters and word lists: children learn to respond to subskills of the reading process, such as letters, digraphs, nonsense words and regularly spelt words.
Sequencing	No: it is denied that a hierarchy of reading skills exists. Sequencing of reading materials follows the sequence of normal language development.	Yes: subskills of the reading process are taught in a strict hierarchy or sequence. Mastery at each level is demanded before child moves on to next level in sequence.
Measurement of Progress	Irregular: measurement of progress is obtained irregularly. Teacher may therefore lack sufficient information on each child.	Regular: measurement of progress is obtained regularly and systematically, preferably daily. Danger of testing taking precedence over teaching.
Error Analysis	Qualitative: the type of error is more important than the number of errors.	Quantitative: total number of errors is more important than the type of error.
Purpose of Testing	Strategies: an analysis of error type provides teacher with information about the effectiveness of a child's reading strategies.	Mastery: a numerical count of errors determines whether a child has achieved mastery on a particular subskill
Population	Successful readers: theory derived mainly from observations of successful readers. Relevance to children with learning difficulties is unknown.	Poor readers: method of instruction derived mainly from experiments on children with learning difficulties. Relevance to normal readers unknown.

RECENT DEVELOPMENTS IN EDUCATIONAL PROGRAMMING FOR THE SEVERELY HANDICAPPED

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RECENT DEVELOPMENTS IN EDUCATIONAL PROGRAMMING FOR THE SEVERELY HANDICAPPED

Bernie Thorley

Who are the severely handicapped?

From an educational point of view it has become unfashionable to use the expression "severely handicapped" to refer to permanent characteristics of children. Educators nowadays tend to speak of "severely handicapped education" as some, hopefully temporary, phase that needs to be implemented with a small percentage of children.

Severely handicapped education can be defined as that service which;

(a) employs the most advanced, most powerful forms of instructional technology;

(b) focuses on education in basic self-care skills. early perceptual-cognitive skills, language acquisition, social skills, and early motor training (Sontag et. al 1977); and

(c) is available to children who are progressing in these areas at less than one-third the normal rate of development (or can be predicted to progress at this rate without the service).

The change in fashion should in no sense be seen as a trivial, semantic issue. On the contrary, it represents a determined effort by educators to avoid the inappropriate conceptual limitations imposed on children's development that tend to become associated with static ways of defining educational needs. In a more positive sense, it is now felt by many that a severely handicapped service for a given child (and indeed any special education provision) must have as its fundamental goal the elimination of its own raison d'être. It is felt, moreover, that this same basic phasing-out policy should be fully reflected in teaching objectives, in initial and ongoing assessment, and in the continuing search for efficient instructional technologies. In short, the idea of children moving into higher level, more marginal, forms of special education services dominates present day reforms in the education of the severely handicapped.

Historically, however, the expression "severely handicapped" was applied in a more static sense to children whose general level of intellectual functioning was assessed at more than four standard deviations below the mean. This would include, for example, children with I.Qs. at or below 35 on the Stanford Binet (standard deviation of 16) and children with I.Qs. at or below 40 on the W.I.S.C. (standard deviation of 15). Developmentally, these children were not expected to progress at a rate more than about 1/3 that of normal children. Statistically, about 1 child in 1000 (or 0.1% of the population) falls within this range.

By way of comparison, thirty-three children in every one thousand are expected to score an I.Q. of 70 or less on the W.I.S.C. Incidentally, this figure is often used as a psychometric cut-off point in defining mental retardation. It follows that the severely mentally retarded represent only a small proportion (about 5%) of the total mentally retarded population and are therefore a low-incidence special education group.

These traditional methods of estimating incidence and of defining severely handicapped - based solely on I.Q. - are likely to underestimate, initially, the extent of the educational problem. In particular, there are other children who will need access to the more advanced and more powerful instructional technologies if they are to learn such basic skills as language or self-care; for example the deaf-mentally retarded, the blind-mentally retarded and the autistic. These further groups of children show development which is often complicated by the same stereotyped, self-stimulatory or self-injurious behaviours that one also associates with the severely mentally retarded. Very special teaching will be required to overcome these problems.

Those who reject the static view of severe educational handicaps see a future drop in incidence as: (a) research breakthroughs in the areas of general management, program design and teaching technologies become widely implemented; (b) trainee teachers are given comprehensive and thorough training in use of these innovations; and (c) the self-perpetuating, static way of thinking, along with the untrained personnel and other provisions which go with it, are rejected. Incidence figures in this alternative view will vary systematically in accordance with the quality of services available.

Acceptance of Responsibility for Educating the Severely Handicapped

Acceptance of a responsibility for educating the severely handicapped is of recent origin and came about rather abruptly in some countries. For example, in the U.S.A. educators were jolted into action by two court cases which were decided in 1972 (see e.g. Thorley, 1979, for more detailed discussion). Both these cases ended in consent decrees which ruled in effect that all handicapped children irrespective of the severity of the handicap were entitled to an education which was free, public, comprehensive and appropriate wherever (and across whatever ages) it was available to the non-handicapped. Immediate action was ordered by the courts to rectify the inadequacies. Lack of funds was not to be used as an excuse for failing to comply with the orders.

Despite the court decisions, the Federal Bureau for Education of the Handicapped in the U.S.A. realized in 1972 that there could be no immediate *effective* provision of education for the severely handicapped because there were no trained teachers available. Moreover, there were no teacher training institutions with the personnel, the resources or the interest needed to train appropriately specialist teachers for the severely handicapped. Finally, despite a considerable body of relevant research on teaching the severely handicapped based on principles of learning (e.g. see Barrett, 1977) and dating back many years (Fuller, 1949) there were no comprehensive ongoing research and development programs to serve as a practicum base for teacher training.

It is obvious therefore that education cannot be said to have *validly* accepted its responsiblities with the severely handicapped until it supplies trained teachers to interact with them for an extensive period of time each day during the growing up years. A *valid* teacher, in this responsible sense, must be a person with at least minimal training in (a) selecting and constructing appropriate curricula; (b) measuring and evaluating relevant progress; and (c) selecting and implementing relevant teaching-learning techniques. The use of unemployed regular teachers, with no provision for specialist training of them, cannot be accepted as an appropriate and responsible reaction to a court-identified injustice.

Fortunately, Federal leadership and support was available via the Bureau for Education of the Handicapped in the U.S.A. and with the enactment of Public Law 94-142 in 1975, much has been done to rectify the above problems. There are now in that country some excellent programs for the severely handicapped with brilliantly skilled teachers operating in places such as Madison in Wisconsin. Thorough teacher training programs are beginning to turn out a steady stream of top personnel. Generous funding has attracted some of the very best researchers into a flourishing research and development effort.

On the other hand, here in N.S.W. the situation has been in many respects less than encouraging. There does not appear to be any formal statement of commitment to educating *all* handicapped, irrespective of severity. Many of these children are without a trained teacher of any description. Few, indeed, would have a trained *specialist* teacher. There has been no visionary State or Federal support; (a)to ensure an adequate supply of trained specialist teachers; (b) to ensure that quality training personnel, facilities, and resources are available for training teachers; and (c) to ensure that training is more than mere book learning, by supporting the development of model demonstration programs and practicum centres backed up by proper research and evaluation.

Indeed, eight years after U.S. courts convincingly decreed (in the light of the knowledge available at the time) the total injustice of denying education to the more severely handicapped, there is little in the way of a comprehensive plan to right the injustice in N.S.W.. Schools, facilities and staff-pupil ratios - barely appropriate for moderately handicapped children - are being made to shoulder an impossible non-handicapped. Immediate action was ordered by the courts to rectify the inadequacies. Lack of funds was not to be used as an excuse for failing to comply with the orders.

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Here at Macquarie University we have recently been able to undertake some pioneering work with the severely handicapped due to the support of The Royal N.S.W. Institute for Deaf and Blind Children. Angela Wilson will be discussing some of that work later in this symposium. There are, however, a few general points about the impact of the research which are worthy of special comment here. For example, there are now signs that more and more of our top graduate special education students are developing an interest in the education of the severely handicapped. Second, there are indications that many teachers from state schools are looking to the project as a resource. Third, there is evidence that more teachers are beginning to notice the huge gap between actual services and potential services in educating the severely handicapped and are searching for part-time training courses so that they can play a part in rectifying this gap.

Despite these apparently encouraging signs there are many problems. For example, despite the shortage of trained personnel, an experienced graduate teacher who spends two intensive years of full-time study in a Masters degree program specializing in teaching the severely handicapped may find herself unemployed on the completion of her studies! Second, should she gain employment she may find herself in a completely inappropriate staffing situation which makes it near impossible to achieve the outcomes she wishes to achieve with severely handicapped children.

Something perhaps should be said about the staff-pupil ratios at this point. It is generally agreed that a class of six severely handicapped children will need one highly efficient teacher and two highly efficient aides (or two teachers and one aide). It must be remembered that this is low-incidence education and, hopefully for most of these low-incidence children, a temporary phase. To provide

Despite the complexity and magnitude of the task, and despite the problems of trans-disciplinary co-operation which arise, there is no more active area of research and development in special education at the moment than there is in language acquisition. Understandably, perhaps, the educator will find in the literature considerable differences of opinion about what constitutes the best procedures to adopt, the best sequences to develop, and the selection of content for initial instruction. What these differences often mask, however, is the considerable degree of rapprochement and consensus that is now occurring in language training.

An important curriculum area in severely handicapped education is that of early perceptual- cognitive training. Again a number of specific task sequences and procedures have been widely field-tested and are available in the literature. These programs normally include a rather amorphous mixture of; (a) empirically determined matching-to-sample sequences that are designed to show the ways in which things are alike and the ways in which they are different; (b) jig-saw type puzzle sequences designed to teach the child to recognize part-whole relationships, patterns, configurations and sequences; and (c) a limited series of tasks which are justified because they are derived from Piaget's theory of child development.

While these perceptual-cognitive curricula are handy, and seem to work, they nevertheless lack a clear and consistent rationale. This is such a fundamental and important curriculum domain it is surprising there has not been more research on alternative rationales for selecting content, for sequencing tasks and for designing teaching procedures. The present author has elsewhere outlined a rationale and some potential dimensions of research in this area. (Thorley, in press) less than these staffing standards is short-sighted and uneconomic because many children, who should be moving out of severely handicapped education at 5 or 6 will still be there at the age of 10 or 12!

The quantity of staff available is extremely important, therefore, but so also is the quality. No area of teaching requires more delicate precision and such complex technical skills of its teachers and aides than severely handicapped education. Complications in learning can readily emerge and can be so difficult to eradicate in this highly specialized teaching area.

Developments in Specific Curricula

A considerable, and rapidly expanding, literature of field-tested programs, teaching strategies and assessment procedures now exists (see e.g. Snell, 1978). There are some areas such as in the teaching of self-care (feeding, toileting, dressing and washing) where there is an excellent selection of detailed procedures to choose from. In other areas advances have been less spectacular for a variety of reasons.

Language acquisition, for instance, is both complex and an extensive longitudinal task which typically engages professionals from many disciplines. Indeed many disciplines contribute to effective programming for severely handicapped children in a variety of areas, but this can best be managed within a central organizing framework of treatment and assessment which is the responsibility of the educator. The system works best when the disciplinary specialist acts as a consultant to the teacher in the classroom. On the other hand when the child becomes fragmented and compartmentalized by isolated disciplinary treatments, isolated assessments and inconsistent managament, the best interests of the child are not served.

Some important recent developments in what is loosely called a "social skills curriculum" have emanated from the University of Wisconsin. The development of skills in the appropriate use of free time, recreational time or leisure time are included in this curriculum domain. Severely handicapped children do not initially interact with objects, toys or with other children in their environment. They frequently retreat to self-stimulation when not engaged in one-to-one teaching situations. The Wisconsin group are now developing and field testing finely graded step-by-step skill sequences and procedures for teaching severely handicapped children to interact independently with the physical and social environment. (see Snell, 1979; Chapter 5) This is indeed a major and much needed breakthrough.

Specific Instructional Procedures

The severely handicapped typically display much inappropriate behaviour which interferes with instruction. A number of modification techniques have been developed for eliminating this behaviour. These include reinforcement for not responding, differential reinforcement of other behaviour, punishment procedures (e.g. time out or response cost) and overcorrection. The selection and implementation of these techniques is a sophisticated business and their use needs to be accompanied by data-collection. Inexperience, lack of consistency of application and lack of precision invariably lead to some early teaching failures that are themselves correctible if the teacher builds experience through data-generated feedback and pre-planning.

Overall, however, inexperienced teachers are generally too eager to want to eliminate inappropriate behaviours without first developing a complementary plan to build appropriate behaviours. A more positive program that leads the child to see that his/her actions can bring about orderly and predictable consequences of a pleasant nature, can by itself result in a reduction in, for example, self-stimulation.

Typically, severely handicapped children do not react to social stimuli and social rewards without special programs. This means that the teacher has to rely initially on primary rewards such as food in order to provide sufficient incentive to get learning under way. Apart from its incentive value, however, these primary rewards provide a means of communicating with children - who have no communication skills - about the behaviours which are required of them.

Satiation is a problem in the use of primary rewards and this initially limits the amount of intensive training that can be accomplished on a given day with a particular child. Reinforcement thinning techniques when introduced appropriately help to overcome this problem. Sometimes, various forms of less-satiating, sensory-stimulation reinforcers (such as tickling) appear to work. From the onset of a new program, however, it is important to start developing secondary reinforcers (such as social stimuli and task competence) in order to expand the amount of time during which learning can be effectively guided. Some simple forms of token reinforcement, where access to primary reinforcement is made contingent upon the accumulation of an easily discriminable quantity of tokens, can also be introduced as an effective interim technique.

The teacher of the severely handicapped who uses the reinforcing techniques outlined above must be prepared for many cynical remarks from others. The specialist teacher, however, has no real choice;

either these techniques are used in a sophisticated manner so that learning and communication can get under way or the techniques are rejected and no learning can take place. At present there are no other alternatives.

The initial instructional sequences need to take place in a one-to-one situation and normally involve simple sensory-motor tasks with the assistance of manual guidance. For better functioning children assessment is carried out using skilled sequences to determine where to go. Many of these children will, at this stage, display a "learned helplessness". To overcome this they must learn to act in a prescribed way and learn that desirable consequences will predictably occur if, and only if, they act in that way. The best step-by-step sequence at this stage is the one which is easiest to acquire; that is to say, the one that will bring reinforcement most frequently and most consistently. The child who is learning to act, and is learning to watch for signals which occasion action, has less time for stereotyped, self-stimulatory behaviour. Success, order, regularity, consistency, predictability are key ingredients of this early teaching sequence.

Later the emphasis in specific instructional techniques should shift towards the goal of moving the child out of severely handicapped education. The aim is to help the child through initial step-by-step procedures to cope with gradual increases in the cognitive demands of the teaching situation. These situations should progressively introduce more complex, more intellectual, more abstract and more symbolic interactions with the materials and the teacher (e.g. see Thorley, in press)

Consider the following example which involves teaching the child to discriminate between "cat up the tree" and "cat under the tree". We begin with 2 sets of 2 pictures. One set differs from the other only in respect of the over/under dimension. The cat, the tree and the setting are otherwise identical in each set of pictures.

A conditional match to sample sequence can be set up as follows:

(1) When a picture of either the "under" relation or the "over" relation is used as the sample the child will place it on the one and only correct matching picture in a choice array.

(2) When a picture of either the "under" or "over" relation is displayed at a distance by the teacher the child will select the one and only correct matching choice from an array.

(3) When a picture of either the "under" or "over" relation is displayed and removed the child will remember the correct matching choice and select it when the choices are subsequently displayed.

(4) When the positional arrangement of the choice stimuli is displayed and subsequently removed from display by turning them over the child will remember the positional arrangement and select the matching choice when either of the samples is subsequently displayed.

In the above sequence the child is gradually learning to respond to the "not here and the not now". We are making increasing cognitive demands as well as requiring him to learn the differences between the specific relations which we call "under" and "over". We are forcing the child to code the differences so that he/she can respond to absent stimuli. We are thus in effect providing a functional and pragmatic basis for language as a coding mechanism and language training would normally be introduced in conjunction with the above delay-components in a sequence.

Other Developments

Time will permit only the briefest mention of a number of other developments in the education of the severely handicapped. First, there is the question of where such education should take place. I can do no better than refer you to an excellent discussion of the arguments and counter arguments by L. Brown and his colleagues (Brown et al 1979). In that paper the authors come out strongly for the placement of these children in regular school buildings and advance some compelling arguments in support of their position. The article should be compulsory reading for anyone interested in the education of the severely handicapped.

A second question relates to the age at which severely handicapped education should begin. In the U.S.A. Federal legislation now mandates the right of education to all handicapped children over the age of 3. Many individual States in that country however, have provisions for educating the handicapped from birth to 21 years of age. A detailed discussion of the bases of early intervention of the handicapped is available in Sontag (1977) Chapter 6.

Finally, the question of who should be involved in the education of the severely handicapped. Early in this paper the problems of transdisciplinary co-operation were discussed. Nevertheless, such co-operation is essential with these children and the problems will have to be overcome. Not discussed earlier, but equally important is the involvement of parents. The basic skills we are teaching, such as language, self-care, social skill and the like, are normally the responsibility of the parent. In severely handicapped education, learning these skills becomes such a specialized endeavour that the parents need the support of thoroughly trained specialist teachers. The child cannot be expected to develop optimally unless there is continuity between the home and school. This will mean training the parents and working as partners with them - often in the school situation itself.

Summary

In the foregoing discussion severely handicapped education is seen:

(1) as an essential part of the educational system which must not be identified with classes for low-functioning children run by untrained teachers;

(2) as being concerned with a set of very basic curricula areas;

(3) as representing the ultimate in programming/teaching technology and in the delicacy with which it is applied;

(4) as requiring a staff-student ratio of 1:2 for a low-incidence population;

(5) as rarely being more than a temporary provision especially designed to move the lowest-functioning children to the next and less intensive level of teaching assistance;

(6) as needing the most highly trained teachers, the most highly trained trainers of teachers, the most intensive training facilities, and the most advanced model programs with an ongoing research and evaluation base; and

(7) as having a rapidly expanding data-bank of programming and teaching resources for which methods must be designed to get them into the work-force as soon as they become available in the literature.

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THE UNSEEN HANDICAP

ANGELA WILSON

ROYAL N.S.W. INSTITUTE FOR DEAF AND BLIND CHILDREN

THE UNSEEN HANDICAP

Angela Wilson

HELEN KELLER WROTE:

> The problems of deafness are deeper and more complex, if not more important than those of blindness. Deafness is a much worse misfortune, for it means the loss of the most vital stimulus - the sound of the voice that brings language, sets thoughts astir, and keeps us in the intellectual company of man.

It is doubtful if any area of its size in education has generated more heat and less light than the problem of the education of severely hearing-impaired children. The field has been riven by debilitating controversies that have absorbed the attention and drained the energies of its most gifted educators. In the opinion of many people (Babbidge, 1965), emotion has been accepted as a substitute for research in determining policy for over 100 years in the education of the deaf. The oral/manual controversy and the day/residential school controversy have probably received the most attention. Other controversies exist in the teaching of language (natural/structured), and the teaching of speech (analytic/synthetic). Perhaps one could say that the road ... at times resembles a walk through a briar patch more than a "tiptoe through the tulips".

In Australia approximately seven percent of the population are significantly affected by varying degrees of hearing impairment. This means that in a crowd of 100, there are seven deaf individuals who circulate unnoticed unless they are spoken to, for they have no distinguishing visible feature that shows them for other than a normally hearing person. The word "approximately" is used advisedly, for common census procedures do not permit the kind of search in depth that will yield the fine discriminations that separate those who are deaf from those who are hard-of-hearing. The latter have a different set of problems that are treated by different procedures.

Although this paper is concerned with the deaf, a brief comparison with the hard-of-hearing may assist in clarification. The hearing loss of deaf people is generally irreversible. It rarely yields to medical intervention such as drugs, surgery, or prothesis, but is amenable in approximate proportion to their availability in quality and depth, to training and adjustment services. Persons who are hard-of-hearing on the other hand can almost always be helped medically. Deaf people must use their other senses to receive information while hard-of-hearing people can and do rely mostly upon their sense of hearing, however limited. Consequently, the hard-of-hearing population differs only in degree from the general population, while deaf people stand apart socially and psychologically.

Several items must be defined before going further. The term "hearing impairment" covers the entire range of auditory impairment, encompassing not only the deaf child but also the one with a very mild loss who may understand speech without difficulty. The term "deaf children" means "those who do not have sufficient residual hearing to enable them to understand speech successfully, even with a hearing aid, without special instruction".

A number of generic problems are faced by individuals with severe auditory deficits. The two major problems are the individual's difficulties in mastering the language of the larger society in which they live and the effects of the resulting communicaton limitations on other aspects of their development, and the insensitivity of hearing individuals towards the impact of early severe hearing loss and the debilitating ramification of such a lack of empathy.

Three educationally relevant variables can be used to describe the nature of a hearing impairment (Haring, 1974):-

(1) The site in the ear where the impairment occurs. Deafness may be conductive or sensorineural. Conductive deafness is frequently amenable to surgical treatment. To date sensorineural hearing losses which affect the transmission of nervous impulses in the inner ear and up to the cerebral cortex are not correctable by surgery, and acupuncture has proved ineffective.

(2) The age of onset of the hearing loss. A prelingual loss occurs before the acquisition and consolidation of speech, as opposed to a postlingual loss which occurs after the acquisition and consolidation of speech. Speech is in no way an instinctive ability. It is entirely learned. It can be stated that the earlier the onset, the greater the handicap.

(3) The extent or degree to which hearing acuity is impaired. A loss may range in severity from a slight or partial loss to an extreme or profound loss. Impairment may be unilateral or bilateral, and some frequencies may be more affected than others.

Etiogy

A child's loss may be due to a number of different conditions. Losses can be divided into endogenous, those conditions which have their origin in the genetic characteristics of the individual, and exogenous, which include all causes other than factors of heredity. So far, prevention is impossible for hereditary deafness.

Exogenous causes may be due to cyclomegliac virus or to rubella, known also as German Measles. Immunization is now available for the latter cause and hopefully rubella deafness and deaf-blindness should become uncommon within the next ten to fifteen years. It is important to note that nine percent of schoolgirls in New South Wales are still missing the rubella vaccination programme for one reason or another.

In a recent follow-up survey fourteen percent of vaccinated girls (after five years) had unsatisfactory rubella antibody levels. Vaccinations commenced nine years ago. It should be remembered that natural rubella infection produces a higher mean antibody level than vaccination. Of the girls vaccinated in our state since the programme commenced, some 25,000 girls may be still susceptible to rubella infection. Some need to be vaccinated again before becoming pregnant.

In deaf/blind children the rubella virus may remain active for a considerable period of time during infancy and is thus capable of producing further damage to the child (Keir, 1976; Hardy, 1973; Sever, 1973; De Long 1971). At birth the virus is widely disseminated throughout the tissues and may persist as mentioned, for long periods in the throat, cerebro spinal fluid, tissues of the eye and in the middle ear (Desmond et. al. 1970). It may take up to eighteen months or longer before the virus is finally excreted from the system.

Diagnosis

Identification or location of the potentially deaf child is of vital importance. Identification is especially difficult because there are usually no visible stigmas associated with a hearing loss. Two methods that have been used to identify the suspects are mass screening techniques and "at risk" registers. Mass screening of infants has picked many normal and missed many abnormal, and H. Davis (1975) stated that neonatal screening is too expensive. In the United States it is no longer advocated as a public health measure. It is probably a good technique for dealing with children of kindergarten age. A study in 1967 reported that out of 10,000 neonates tested in a mass screening programme, only 150 were singled out as having a potential hearing impairment. Subsequent testing determined that only four of the 150 were actually deaf. "At risk" registers have been disappointing, unless the net is spread so wide as to probably include a third of all births. However, some "high-risk" registers have proved of assistance. Where intrauterine foetal infection occurs, congenital anomalies of the skull or face are visible, a low birth weight (under 1,500 grams or 3.3 lbs) exists, the bilirubin level was potentially toxic, or there is known deafness in the immediate family, the baby should be on a "high risk" register. Not all infants who are in a high risk registry will be deaf. Recent reports (Mencher 1974) have shown the use of such a register leads to a higher correct detection rate in the new-born nursery than do various behavioural screening methods.

The conduct of the high risk register can be mandated, but the desire to follow through must be generated in medical education.

However, even this register is time consuming. It is expensive for trained personnel to take an in-depth history and cross validate the information in medical and/or other records, and with more children being born outside of hospitals, they can be missed.

The only possible way of picking up deaf children early enough is a massive propaganda campaign. All medical and nursing personnel must learn the potential causes of deafness and must be alerted to the ways in which the behaviour of the deaf child differs from the normally-hearing child. Mothers during their pre and post natal care must also be told about the importance of hearing. If they suspect any hearing loss they should contact their doctor, or make an appointment to visit the nearest National Accoustic Laboratory for an evaluation of their baby's hearing.

It is worth mentioning one neonatal screening device which does appear to offer potential. This is the crib-o-gram (Simmons & Russ 1974), an automatic recording device. A sound is made in the nursery and the baby's movement in the crib is correlated to when the sound was presented. It is especially valuable screening all babies in an intensive care unit or premature nursery. Automation of the test process has several advantages over human observers. The cost is lower and a machine can make repeated observations at different times and thereby obtain a statistically valid sample of the responses for each baby. Such a sample is likely to be more independent of nursery routines, random responses and the rapidly changing arousal levels of the newborn. Data analysis is rapid and accurate and can be done by anyone after a few practice sessions.

The need for early detection of deafness in children is now universally accepted. While there has been significant improvement in the rate of early diagnosis in Australia since the 1963-1969 rubella outbreaks, further improvement is still required. According to the records of the National Accoustic Laboratory, the average age at which children under eighteen years of age were provided with hearing aids in the period 1971-1975 was 84.10 months and the median age was 66 months (Upfold, 1978). Half of the children had only mild to moderate losses: the signs of such a loss are less obvious and the diagnosis often does not occur until the child commences school. At a ratio of approximately 2.544 per 1000 live births (Goodall, 1974), there is a consequent lack of familiarity in the community at large with the signs, symptoms and presentation of deafness. The medical profession has frequently been criticized in the media and elsewhere for the part it has played in delaying diagnosis.

Another reason for delay is that medical personnel often say a child is too young for a hearing assessment. Nothing can be done until he is older. Amplification and training can, and should be provided immediately the deafness is found. The aim should be to diagnose and commence habilitation before the child is nine months old at the latest (Upfold, 1978).

A number of tests are conducted by the National Acoustic Laboratories' audiologists to determine a hearing loss. However, deaf children with additional problems and deaf/blind children can present difficulties, often because they cannot make the appropriate responses. In these cases common household sounds, such as a spoon tinkling in a cup, bottles clinking, and the click of a door handle can be effective in eliciting responses. Sound toys can also be used to establish a crude audiogram. One can establish the frequency range of such material through spectrographic analysis. For example, there is a bell with no visible energy below 1500 H2, and another bell with no visible energy below 2500 H2. If a child responds to one or both of these bells a crude audiogram can be obtained. Sound toys of very short duration, such as clackers, elicit fewer responses than shakers and cowbells which can be sustained in time. Perhaps a sound spectograph could be done on specific spoon and cup combinations that would tinkle at the desired frequency range. One could have a low-frequency cup for breakfast, a mid-frequency cup for lunch and a high-frequency cup for dinner.

Facilities available in N.S.W. for pre-school hearing impaired children.

Education of the deaf in N.S.W. and throughout Australia is advanced in terms of world performance. On the other hand, it is still underdeveloped in terms of the needs of deaf people and their potentialities.

Parent education is a very sacred cow among professionals and educators of the deaf. That is, like motherhood, it is almost never spoken against and generally affirmed in the most sacred terms. In practice, however, the parent often receives little education while the focus of the programmes and of professional attention has been on the child to the exclusion of the parent. The primary reason is probably the lack of adequate training of the professional in dealing with and educating parents. Often the parent is seen as a threat and either talked down to or relegated to an appendage status. If parent education is to be viable, the parent must be seen as the primary person, and programmes must be designed entirely for the parent.

Parent education should perhaps be renamed family education. The child and parent do not exist in a vacuum, and other family members must be considered, in particular siblings and grandparents. Often parents assume the role of information provider and of comforter to their own parents when in reality they want to be comforted. Siblings must be incorporated into the therapeutic programme: otherwise resentment may occur toward the hearing-impaired child.

Competent parent and family counselling is of the highest priority and must be available to all families with a hearing-impaired child. Research findings and studies about the deaf must be re-written into lay language. This is of paramount importance since little of the literature on deafness reaches kitchen tables in the homes of deaf children. The availability of these writings translated into understandable lay language and graphically illustrated where necessary would enhance parent education and permit parents to make wiser decisions.

The Shepherd Centre at Sydney University, which was established in 1970, has a home-visiting programme in which a trained teacher of the deaf visits the under three-year-olds in their homes. At age three these children are integrated into local nursery school programmes with a trained teacher of the deaf attached to the nursery school to withdraw the child at appropriate times for individual language, speech and auditory training. The Centre uses caravans as portable classrooms which can be moved from one school to another depending on the geographical placement of the children. The Centre also has a demonstration classroom at its headquarters in Newtown. The Shepherd Centre demands high parent involvement.

The Royal N.S.W. Institute for Deaf and Blind Children conduct early intervention programmes for children who have a visual and/or hearing impairment, with or without other handicaps, such as retardation, physical disability and/or emotional disturbances.

When a child enters the programme, he or she is pretested in language (receptive and expressive) self-help, motor (gross and fine), academic and socialization skills and placed on individual prescriptive programmes designed to teach skills in which he or she is deficient.

The Institute's four parent counsellors undertake home visits when necessary. Parents of very young children learn best through direct modelling and supervision in the home setting and staff can instruct better because they are more aware of individual home practices, obstacles and the like. It also helps give parents a more personal relationship with the counsellor.

A Play Group, conducted weekly at the Deaf and Blind Children's Centre, North Rocks is attended by parents and children who are receiving pre-school services. The Institute's Welfare Workers have organized a Mothers' Group which meets in conjunction with the Play Group. This provides mothers with peer support and encouragement for their own management efforts as well as information from others in the group about their child-rearing practices and about available services.

The State Education Department has established nursery programmes at selected state schools in city and country areas. Enrolment may be from the age of three years and parents are encouraged to be actively involved.

In pre-school programmes we cannot simply extend methods of working with six, seven and eight-year-old children to children who are two, three, four or five. Any programme must be flexible and must not get locked into a system which prevents achieving what is best for a given child (Dunn, 1973, p. 396). Programmes must be individually orientated.

In the United States experimental groups of two and three year old deaf children participating in home-based programmes not only made significant intellectual, social, perceptual and communication gains, but subsequent testing revealed these gains increased and continued after intervention ceased. Studies indicate there tends to be less gains when the intervention programme is initiated after the age of two, and negligible gains occur when children are not enrolled prior to the age of five.

The success of the intervention programme also seems to be a function of the type of adult participant. For example, when an educational or experimental tutor went to the child's home daily, only temporary gains in the child's intelligence scores were noted. Other studies conducted concluded that a "family-centred approach" is essential for optimal effect. The key seems to be a maximum amount of mother-child interactions. The parents must receive instruction, guidance and counselling from some community agency, preferably the school where the child will later be attending.

Several studies have indicated that an ideal situation is for the school to coordinate a comprehensive home intervention programme during the first two years followed by the addition of a small group setting in the third year. When parent intervention preceded group intervention, enduring effects were maintained throughout subsequent school years. (Hicks, 1979).

Educational Placement

No simplistic solutions exist to this complex problem. The less one knows about the details of the situation, the easier it is to generalize and pronounce panaceas.

There is a place for the residential school, for example the North Rocks Central School for the Deaf, North Rocks; the day-school - Farrar School for the Deaf, Croydon, and St. Gabriels, Castle Hill; The "Opportunity Deaf or "O.D." Class and the integrated class with hearing-impaired students, in a comprehensive programme for the deaf.

Brill, Merrill & Frisina (1973) list the following as requirements that should be met by educational programmes for the deaf.

1. Sufficiently large in size to ensure homogeneous grouping
2. Qualified teachers.
3. Supervision by qualified individuals who are highly knowledgeable about the education of the deaf.
4. Provision of an appropriate curriculum for deaf children.
5. The availability of supplementary services such as audiological and psychological by personnel who are knowledgeable about deaf children and their educational problems.
6. The opportunities for extracurricular activities that will round out the deaf child's educational program, ones in which he is able to participate.
7. Provision of vocational training and counselling.
8. Provision of appropriate equipment such as amplification equipment, captioned films and other educational media (Pp 19-20).

A few words must be said about integration. It is the physical placement of a hearing-impaired child with normal hearing peers and is an option in educational programming. It must not become a magnificent obsession or a parents' status symbol. Integration is a process as well as a goal. It is not an educational panacea, it must serve children and not causes.

Integrated programmes will only operate properly if strong support services are available. In this State these services are provided by Itinerant Teachers of the Deaf. Sensitivization of teachers and hearing students to the needs of the deaf student and systematic attention to curriculum modifications must be undertaken if such a programme is to be effective. Haring wrote:-

> Hearing-impaired children should be integrated for a specific subject area only if they are at approximately the same chronological age, mental and grade level of the class they enter. (1974:516)

This writer believes that the lower achievement levels of many prelingually profoundly deaf students, attibutable to their early and continuing language and reading difficulties, pose almost insurmountable obstacles for many of them to be fully integrated in classes for hearing children. For these children we must make special education services even more specialized.

For those who can be satisfactorily integrated, and to whom such placement does not create serious social and psychological difficulties, placement in integrated classes is eminently to be desired. It serves to keep more open to them the choices in later life which are important to deaf adults, and it is likely to enhance their educational opportunities.

One must realise that integration does not only involve school hours. The deaf child needs hearing friends away from school. Sports-team games, Girl Guides and Scouts, can provide a great deal of pleasure and satisfaction.

The writer would like to raise one final point, addressed especially to those readers who work with the deaf. To what extent do you, regardless of whether you favour integration or otherwise, endeavour to integrate with deaf people outside the hours you are paid or required to do so? ... Why is it that we do not tend to invite deaf people to our dinner parties, and do not get invited to their functions, or if we do, often find some excuse for not going?... Is our interest in deaf people confined to the theoretical, academic level? ... When was the last time we were in a group of deaf people for no other reason than that we enjoyed their company?

Modes of Communication

The Methods Controversy has been ranging over 200 years and has perhaps accounted for more confusion than any other question concerned with the hearing impaired. Issues have been distorted beyond recognition and misunderstood by professionals on the periphery. It is really inaccurate to speak of the oral/manual controversy because no present day educators of the hearing impaired advocate a "pure" or "rigid" manual position. All educators are concerned with developing a child's ability to speak and understand the spoken word to the highest degree possible.

Vernon has commented on the controversy (1973):-

> Nobody advocates a manual education. This is not the issue. The issue is between a combined use of oral and manual methods of communication as contrasted to an approach that is limited to oral modalities only. Despite the failure of just using oralism, despite the evidence of Stuckless and others on the value of early manual communication, and despite the common sense self-evident lack of logic in trying to reach a child through a method that emphasizes his weaknesses (speech and hearing) and minimizes his assets (vision), deaf children continue to be denied the right to learn in an efficient way that meets their needs.

Suffice to say the deaf persons' degree of adjustment and his levels of achievement in every activity relate directly to his skills in communication.

The terms language, communication and speech are bandied about in the debate. They should be defined. Communication involves any interaction between living organisms and can be observed up and down the phylogenetic scale from the amoeba to the most complex forms of primate life. Not only can the same species communicate with each other, there is also evidence of interspecies communication.

For human beings the most important sub-category of communication must be language. Language is dependent on learning and is modifiable by experience. The process must proceed within a linguistic environment.

The most important category of language for most people must be speech. In all societies the vast majority of children learn their language through an oral medium. While speech is the most common mode of communication in our society, it is not necessarily the only mode.

Language should clearly supersede speech as the top priority goal in the education of the deaf. Teachers must realise that speech is only a vehicle for language. The servant all too often passes as the master.

Until recently the oral method has been predominant. Its ascendancy can be traced to the Milan Conference of 1880 when the following resolution was passed: "The use of manual communication of any kind would restrict or prevent the growth of speech and language skills in deaf children".

Oralists maintain children can and should be instructed to utilize the information shown on the lips together with as much auditory input as is available. The emphasis is on speech, speech-reading, writing and reading in the acquisiton of language.

There is nothing the matter with the organs required in speaking in a deaf child. The tongue, lips, larynx and lungs have no deformities, but, because they have not heard speech they are unable to reproduce it. When speech develops it is usually slow laboured and difficult to follow, unless one is familiar with the child's attempts to speak.

By a technique of kymographic recording, Dr. C.V. Hudgins (1942) at Clarke School for the Deaf in the U.S.A., found the following abnormalities in the speech of the deaf: slow and laboured speech, usually accompanied by high chest pressure with the expenditure of excessive amounts of breath; prolonged vowels with consequent distortion; abnormalities of rhythm; excessive nasality of both consonants and vowels; and imperfect joining of consonants, with the consequent addition of superfluous syllables between abutting pairs.

Dr. McCay Vernon has written (1970):

> Few persons prelingually deafened, and this comprises 95% of the school population, develop speech that can be understood in most social situations.

Conrad (1976) summarized the levels of oral skills reached by 360 profoundly deaf children in Schools for the Deaf or Partially Hearing in England. When these children left school half of them had a reading age of less than 7.6,, half of them lip-read worse than the average hearing student, who was untrained and inexperienced; 70% of them had speech which on the whole was too difficult to be understood, and only 10% had speech which was easy to understand.

With the introduction of more high powered aids and the development of task analysed sequences for teaching speech, more will be achieved in teaching deaf children to talk in the near future. Speech and residual hearing skills are influenced more by the emphasis given them in a particular educational programme than by the use of manual communication.

Speechreading, lipreading, and visual listening are all terms which refer to the same medium that can be used for receiving language. The less auditory reception the individual possesses, the more dependent he is on the use of vision.

The lipreader can only make use of "reduced visual cues", that is only about one third of the sounds that make up the English language are visible. Two thirds of sounds are either invisible, or else they look just like some other sound on the lips. For example. p,b;t,d; k,g. Furthermore, among the most difficult sounds to lipread are the most important ones, for example, the vowels. The few sounds that are visible for speechreading must be grasped in the fleeting instant that they are on the lips. Vocal inflection, volume and voice quality are not visible at all.

As a result of this ambiguity the best lipreaders in the world only get about one fourth of what is said, and they are not deaf. One reason they are not deaf is that in order to lipread for comprehension, the individual in question must have a good knowledge of language. Children prelingually deafened do not have this command of language. As a consequence, the average deaf child usually only understands about five percent of what is said to him when he depends upon lipreading.

Unfortunately, there is no way of predicting accurately whether a given child will succeed in an oral programme. Some children seem to progress reasonably well in oral programmes in the early years, only to level off. Others seem not to do well with oral methods for some years, and then improve spectacularly. The factors that determine a child's "oralness" or "non-oralness" still remain obscure. Much detailed and planned research is required to determine the contributing factors in each instance.

Perry (1975), indicated that while many processes are entailed in visual communication, the most basic process is the ability of the child to perceive, retain and recall visually presented language.

The ability to visually perceive speech (with or without cues), finger spelling or signs; which are the systems of communication input most often used by deaf children, requires the development of a number of complex integrated skills. Basic to all these systems, however, is the necessity to perceive patterns that are presented successively. The ability to perceive such patterns requires a hierarchy of sub-skills. This hierarchy seems to include, at its basic level, visual acuity and the ability to discriminate a figural pattern from its ground. It also includes skills such as the ability to discriminate between various shapes during simultaneous presentations, while the shapes remain in view, and from memory. Furthermore, complex skills required are the abilities to retain successively presented patterns and either to recognize them or be able to reproduce them in the correct sequential form.

The bases of most speechreading methods have been grounded in work with hard-of-hearing adults. There seems to be a lack of experimental evidence in the area of speechreading and no objective data exists to enable a choice to be made between the various approaches.

Methods employed in the U.S.A. in recent times, in the education of deaf children, especially those of preschool age - have tended to minimize the importance of speechreading. Although the philosophy of total communication includes speechreading, for some reason speechreading tends to receive less emphasis than other components, such as signs, speech, fingerspelling, writing and auditory training.

While it seems most deaf individuals are not good speechreaders, there is no evidence to suggest that deaf individuals cannot become good speechreaders. It is an invaluable tool for any deaf individual. Why it has received little genuine attention in the past 50 years from oralists and combined oral-manual proponents must remain a mystery. (Moores, 1978: 240)

Cued Speech, developed by Cornett (1967) is a method of communication designed for use with and among the deaf in which eight shapes of one (either) hand are used in four positions near the face to supplement the information visible on the oral area. The combination provides a one-to-one visible representation of the syllables and phonemes of spoken language. The information supplied by the hand, the cues, are meaningless unless associated with the lip pattern. The system appears to be beneficial to the development of articulatory skills.

One aspect of a phonetic gesture system such as cued speech is troubling. The phonetic cues were developed to complete a full and effective speech system. But a very young deaf child does not speak effectively. It seems therefore that the cues when coupled with ineffective vocalizations would provide a relatively ambiguous and difficult signal for the teacher.

Cornett wrote, in the winter 1974-1975 edition of Gallaudet Today:

> Cued speech makes it possible for the deaf
> child of hearing parents to learn to use English

> without reference to signs. At the appropriate age he should learn sign language as a second language, from a person who really knows it and uses it as a native language, with no confusion of syntax. A deaf child of deaf persons should learn signs at home as his first language. He should be taught English as a second (separate) language by hearing persons through cued speech,, without reference to signs. In either case, the deaf child should become truly bilingual.

Most of the evidence of the effectiveness of cued speech consists of case histories and anecdotal data. To date, to the writer's knowledge, no large scale, long term research has been carried out to prove that the results achieved are consistent.

Fingerspelling, used by many deaf people is really a variant of English print. In fingerspelling, the fingers are placed in certain standardized positions in relation to one another to denote the different letters of the alphabet. In most parts of the United Kingdom and Australia, both hands are used at the same time, but in America, Europe and Eire, only one hand is necessary.

Advantages exist in using the manual alphabet where the complete English alphabet is transmitted and received by the communicator. This makes it possible to say anything that can be said in the graphemic version of English. It is a simple matter, requiring only a few hours to learn how to form the letters with one's fingers. It takes, however, a great deal of practice to attain proficiency in communicating by this means, with reading usually more difficult to learn than transmitting. Any reasonable degree of skill requires one to function at a word rather than a letter level. To read at a comfortable rate of transmission one must be able to see words and sometimes brief phrases. When sending, there is usually no conscious awareness of individual letters.

Some inherent characteristics severely limit the usefulness of fingerspelling. It is slow. A comfortable rate for very experienced adults is about 300 letters (or 60 words) per minute (for the one-handed alphabet). Normal speech is about 150 words a minute and hence is about two and one half-times as fast.

Fingerspelling cannot parallel the normal speech system. It is simply too slow. This fact forces a speaker to speak very much more slowly than usual or to spell only a portion of what he says. The former choice results in speech which would be artificial and rather dull. It also severely limits the amount of language to which the child is exposed. The latter choice narrows down the spelling some; usually only key words are spelt because it is more comfortable to perform this way. It is more likely to be followed by teachers.

Other difficulties are also present. If language is to be exposed manually as early as possible in the life of a child, the average eighteen month or two year old child simply does not have the perceptual and motor coordination to handle the manual alphabet at a rate remotely approximating speech. Moreover, since fingerspellings' closest counterpart is not speech but print reading the manual alphabet may require him to read as he acquires language. No one has contended that reading should precede language acquisition. Finally, it is extremely difficult, if not impossible to parallel or approximate normal speech rhythm when you fingerspell.

Several reports on the educational achievement of deaf children exposed to fingerspelling and speech (sometimes called the Rochester Method in the United States and neo-oralism in Russia) exist. Only one study is sufficiently rigorous (Quigley, 1969). The results indicated fingerspelling has a small positive effect when introduced at four years of age, clearly later than desired in life for a child. The author doubts if it could be used very efficiently at a much earlier age.

Total communication is a philosophy, not a system. It is

> .... a philosophy requiring the incorporation of appropriate aural, manual, and oral modes of communication in order to assure effective communication with and among hearing-impaired persons (American Annals of the Deaf, 1976 : 358).

In view of the bitterness involved over manual communication it is surprising to find that until 1965 objective research was almost nonexistant. Most of the available literature still consists primarily of position papers in favour of one or other of the various methodologies.

There is also a lack of any direct evidence that the use of manual communication is in fact detrimental to the development of speech skills. If such an interference relationship existed, one would expect to see it reported in study after study. Its absence is thus noteworthy.

One should discuss briefly the difference between sign systems and sign languages. Manual sign languages employed by deaf individuals do constitute legitimate language systems. Popular folklore to the contrary, there is no universal sign language. The potential number of sign languages, like spoken languages is clearly unlimited. American Sign Language (ASL) remains an exotic language. It has been subject to less scientific analysis than many dialects spoken by isolated tribes in the most primitive, inaccessible areas of the world. Until recently only "oral failures" were exposed to signs in the classroom. Often, after eleven years children were considered failures because they did not meet the one criterion for success - speaking well enough to become part of the hearing world. Many deaf people prefer to use sign language. They have a perfect right to make that choice, and no aura of failure should surround it. Deaf people must be judged as human beings rather than on the basis of the extent to which they have mastered articulation skills.

It was Stokoe who was the pioneer and who brought the tools of linguistic analysis to bear on ASL and demonstrated that it is a linguistic system with all the important characteristics of a spoken language: phase structure, a systematic distinctive feature set for expression, transformational rules, etc. Bellugi & Klima and their associates, at the Salk Institute are conducting a series of investigations on the development and use of ASL by deaf children and adults.

When one is first confronted with sign language communication, it is the movements of the hands and arms, the "waving about", that one notices. On closer examination, the different shapes of the hands are probably observed. A third, and perhaps less noticeable characteristic is the fact that the hands perform their movements in different places or positions. A careful study of each sign will show that all signs are characterized by these three components, thus having the same structure in principle. In simple terms it can be described as follows: (1) one or both hands (2) execute movement (3) in relation to some part of the body. These three aspects of the sign can be termed (1) the articulator, (2) articulation and (3) place of articulation.

Every sign has a kind of nucleus, a "skeleton", which distinguishes it from other signs. The task of the descriptive linguist will be to capture that nucleus, and to describe exactly what it is that constitutes the individual sign.

There is enormous difficulty in research into sign language. Unlike general linguistics, there is no established methodogy to fall back on. Researchers in sign language will have to find their own way.

Stokoe (1958) developed the concept of the chereme (KERIYM), as a motor analogue to a phoneme. Cheremes constitute the visible distinct elemental units of a sign language much as phonemes constitute the auditory distinctive units of a spoken language.

Until recently the grammatical structure of sign language has been different from English, yet through a combined method, sign language can be changed and adapted to English sentence structure. The teacher, speaking words and using signs simultaneously and fingerspelling, will be able to present English in its proper perspective to the deaf pupil just as exactly as it is spoken to native speakers of English.

The deaf have a number of problems in achieving grammatical competence and these cannot be ignored when developing a signing system.

Stuckless and Birch (1964) listed ten difficulties. These were verb tense; agreement of articles; noun number; verb agreement with number in subject; confusion between "to be" and "to have" especially "to be" in place of "to have" ; verb omission; use of auxiliary verb; infinintives; prepositions; and conjunctions.

Moores wrote that the nature of sign language is such that it could present hurdles to the development of language skills if not presented in conjunction with fingerspelling. In using signs many of the small function words or interstitials (those that present the deaf child with problems) which are so important for language competency, are omitted. Also in most cases it is impossible to form different word endings to indicate plurals, verb tenses, adverbs, etc. These are the very ingredients which are necessary for a mastery of English.

It must be stated that facility with sign endows a person with no more knowledge about how to teach it, modify it for other uses and evaluate its appropriateness for the classroom than that possessed by native speakers of Sydney, Paris, Moscow or Peking for comparable tasks in their languages.

One must, however, sound a note of caution on the use of total communication particularly with respect to the assumptions one makes before adopting it and the expectations one has when using it.

One assumption that underlies the use of total communication is that by simultaneously signing and speaking to the child, the child is receiving speech input and speechreading practice, which will lead to the child's own speech production. Put another way, the responsibility for intensive speech instruction may have been abdicated because one assumes that the child is being presented with sufficient speechreading practice as a consequence of the continuous use of total communication. The expectation then is that the child's speech skills will not decline and may even grow with the use of total communication.

When such an expectation is not met, total communication as a whole will be faulted and may well be abandoned. The caution being raised here challenges these assumptions and expectations. First, the child's attention must be split between the two visual systems, manual (sign and/or fingerspelling), reading and speechreading. One should not expect this to be as effective for speech skills as intensive speech training. Unfortunately, total communication is not being used properly in many cases, with people not speaking while they are signing, and the child is deprived of ANY speech exposure, whether incidental or intensive. In order for total communication not to go down the drain (and all manual communication with it), one must recognise its limitations. If speech is the skill being taught, there is no substitute for intensive speech training.

The methods controversy has dichotomized the field to such an extent that other issues have not received adequate attention. For example, the content of early education programmes has been all but ignored. Many programmes follow the traditional nursery school mould, with the major emphasis on socialization. What is needed are more programmes with structured components with specific academic and/or cognitive training.

It is helpful to have some understanding of the techniques and methods traditionally and currently employed in teaching deaf children.

The Teaching of Language

Moores (1970) wrote:

> A profoundly deaf child does not, nor can he be expected to, acquire language naturally and automatically. Without intensive compensatory training he is totally nonverbal, he might even be unaware that such things as words exist. For this child language is not a facilitating device for the acquisition of knowledge. Rather it is an overwhelming obstacle that stands between the child and full development of his academic, intellectual and social potentials.... He suffers ... from a lack of opportunity to fully interact with and manipulate his environment in meaningful ways. Although deafness itself has no effect on intellectual development, if the child is not provided with compensatory tools, the deafness will lead to impoverished communication skills which in themselves will set severe limitations on all aspects of development.

Language teaching is vitally important in the education of the deaf. The child must be exposed to language for the acquisition process to occur. Van Uden of Holland (1970) estimated that a child is exposed to approximately three million words per year. A profoundly deaf child whose loss is prelingual does not have this exposure to words. Unless manual communication is used the child's input or receptive language consists of lip movements and the child must look at the speaker's face. Even if fingerspelling or signs are used, the child must attend visually to receive language. With evaluation measures in the past it has been shown deaf children have serious deficiencies in their knowledge of the English language.

The major problems regarding language for the child are vocabulary; multiple meanings; verbalizations of abstrations and complexity of structure. Many words have multiple meanings which are clarified by hearing children, for example, one runs the bath, runs up the flag, runs round the oval and runs for the presidency. A woman may have a run in her pantyhose. Deaf children must have formal instruction in such simple abstractions as "hope" and "want".

In general the deaf appear to be comparatively deficient in the flexible manipulation of our language in order to make the best use of it as a tool of communication. This may well be due to the methods teachers use in teaching language. There are two major approaches to teaching language to deaf children. The natural method, also known as the synthetic, informal or mother method, and the grammatical method, sometimes referred to as the logical, systematic, formal, analytical or artificial method. The grammatical method preceded the natural method.

Most teachers and programmes are somewhat eclectic in their approaches. Both methods are usually incorporated to some extent.

Analytical methods consist of Wing's Symbols, the Barry Five State System, The Fitzgerald Key and The Printed Word. These methods provide the tools by which a majority of the most commonly used English structures may be generated. There are no illusions that any analytical approach by itself, will provide all deaf children with a knowledge of standard English.

The natural methods have been more prevalent. This approach is used basically, "to give to the deaf child the same start in life that his hearing brothers and sisters receive"(Groht, 1958) and it is geared to the natural development of the child rather than a formalized teaching situation. Despite advances over the last 200 years, the teaching of language to the deaf remains an unexact science.

The Teaching of Speech.

One would think the teaching of speech to deaf children would be a well-researched, empirically-based, systematic process. With the exception of an excellent presentation of techniques used to develop speech at the Lexington School for the Deaf by Vorce (1974), an overview of speech and language by Calvert and Silverman (1975) and Ling's book Speech and the Hearing Impaired Child, the comtemporary literature is scarce. Moores (1978 :223) wrote:

> The situation in teaching speech to the deaf is analogous to that of the weather - everyone talks about it, but very few seem to do much about it.

Speech involves not just articulation but respiration and phonation. Often no distinction is made between speech development and speech remediation. The classic study of speech intelligibility (Hudgins & Numbers) was reported in 1942. To the writer's knowledge no study has been conducted to date that looks at the effects of different methods or techniques of teaching speech to the deaf and comparing the results.

Although the education of the deaf is viewed by much of the lay public and some of its practitioners as an esoteric, somewhat mystical process, little has been done in the way of the development of special curricula outside of language and speech teaching, and auditory training. In other areas, especially those involving traditional academic subjects, the tendency is to rely on courses of study and curricula designed for students with normal hearing. If the material has been modified, this has typically involved a simplification of vocabulary.

The writer wishes to state that working with deaf children requires precise, systematic, instructional procedures. Teachers must become instructional experts. They must learn to state precisely the objective for a particular skill and they must then commence direct instruction. They must also state the criterion to be reached if the pupil is to demonstrate his accomplishment. The mere presentation by a classroom teacher of an interesting worksheet or exercise is not necessarily teaching. The student must learn what the teacher is teaching.

Hearing aids

A number of different kinds exist, the two major kinds being body aids, and ear-level aids. The major advantage of ear-level hearing aids is associated with their location at the ear, rather than on the chest. The effect of clothing noise is thus eliminated. Also, having two aids at each level (binaural hearing) enables the head to play its role in the spatial separation of sound sources. However, they are less durable than body aids. The disadvantage is a result of the proximity of the microphone and receiver, which increases the liklihood of acoustic feedback at lower gain and output levels than would be found with a body worn instrument. The new electret microphone is now used in all behind-the-ear aids, and gives a far better range than earlier types.

Most countries, unlike Australia, have no government scheme for providing hearing aids. Our National Acoustic Laboratory does this and also has a Mobile Technical Service Unit which gives regular maintenance service to Sydney schools and "OD" units and to selected country centres.

Present Trends

What are the most important trends in the field of deafness today?

The following lists what the writer sees as some major trends in this area of special education.

1. Increased public awareness and public understanding of deafness. One of the greatest problems associated with deafness is society's concept of the handicap. This is too often the deciding factor in the placement of deaf persons in society. The better concept society has of deafness, the lesser problem would communication with deaf persons be. The deaf do not want sympathy but empathy and understanding. They do not want charity but a chance.
2. An increased interest in total communication.
3. The education of deaf children with added problems. We need curriculum methods and materials specifically designed for these students. Teacher training programmes must train teachers to work with these children. A definition of these children has been devised by the Office of Demographic Studies of the Division of Research, Gallaudet College: "An additional handicapping condition is defined as any physical, mental, emotional, or behavioural disorder that significantly adds to the complexity of educating a hearing-impaired child."
4. Individualized instruction, the development of task-analysed sequences, the use of electronic aids and media orientated instructions.
5. Mainstreaming or integration. Mainstreaming is desirable if a suitable regular class and specialist support is available and the student is ready. Inappropriate or premature mainstreaming can produce social isolation, academic failure, and a "de-normalizing effect".

6. More secondary and continuing education opportunities.

7. The growth of deaf leadership. There is a growing trend overseas to employ deaf teachers, although none have been trained in Australia. In this country the time is still not in sight when the influence of deaf individuals on the education of the deaf will be what by right it should be.

8. An increasing use of captions and sign language on national television. The Australian Centre for Visual Television (ACT-TV) plans to have a Nationwide, Weekly Visual Television Programme by 1981.

The hearing handicapped child born in 1979, the International Year of the Child, and surviving one year with modern medical care, can expect to live until approximately the year 2054. The questions we must ask ourselves are:

> Are we equipping the child with limited hearing to participate in and be an effective member of an increasingly complex urban world?
>
> Are we preparing the child to be a part of a knowledge-centred society, with a growing emphasis on communication as a necessary component in adapting to technological and social change?

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PERIODICALS IN THE UNITED STATES, AUSTRALIA AND GREAT BRITAIN CONCERNED PRIMARILY WITH DEAFNESS:-

1. Australian Journal for Teachers of the Deaf.
2. The Volta Review.
3. American Annals of the Deaf.
4. Deaf American.
5. Teacher of the Deaf.

6. Contact (Bulletin of the North Shore O.D. Parent Group).
7. Voice. The New South Wales Teachers of the Deaf Newsletter.
8. Exceptional Children (has valuable articles on deafness).

HELPFUL HINTS FOR WORKING WITH DEAF CHILDREN

If you have a hearing impaired child in your class the following guidelines are important to remember:

1. Accept the child for himself. Do not blame all his problems on his hearing loss.

2. Seat the student where he can easily see your lip movements. Do not seat the student facing the bright lights or windows because he will not be able to lipread. If outdoors, try to have the child facing away from the sun.

3. Speak naturally and in grammatical sentences. Do not slow down your rate of utterance or overemphasize your lip movements. Do not shout or speak too loudly because this distorts your lip movements. You must remember the student gains clues from facial expression and not just lip movements. It is speechreading.

4. When talking to a hearing impaired student do not stand with your back to a window or a bright light because your face will be in a shadow and this hinders speechreading.

5. Do not walk around the room when talking or talk while you are writing on the blackboard. The student cannot see your lips. If possible make use of an overhead projector.

6. Avoid visual distractions such as heavy make-up and jewellery, which draw attention away from the lips. Men with beards and moustaches are often difficult to lipread because the student cannot see the lips. Do not talk with a cigarette or pipe in your mouth. Do not cover your lips while talking.

7. Do not give the student a command until you have his attention. Call to the student. Some students have enough hearing to hear their names. Others will respond to the sound of your voice once they get used to it. Wave to the student or ask someone near him to get his attention. Tap the student on the shoulder, while calling his name.

8. If there is a class discussion permit the deaf student to move so he can see the speaker.

9. When giving out assignments, write them on the blackboard or projector, or hand out stencilled sheets, so you can be sure the deaf student has received all the information necessary to complete the work. If possible, seat a friend next to the deaf student.

10. Ask the deaf child to explain or repeat class material. Often deaf children just nod affirmatively when asked if they understand. If talking to a deaf child and you laugh at something else, tell the child you are not laughing at him. You may have to rephrase a question or statement more simply if the child is having difficulty understanding. Remember though, the student is NOT retarded.

11. Look at the child while he is speaking. This enables you to hear his speech and to lipread what he is saying, it will help to understand him. If you do not understand what the child has said, ask him to repeat it. The child will probably know whether you understand or not, so it is better to be honest with him.

12. If the student is being disciplined make sure he understands why he is being reprimanded. Do not assume that the rule infraction is understood by the student.

13. If the student is wearing a hearing aid learn about its operation and keep spare batteries in your desk. Hearing aids will amplify, to a certain degree, the sound the deaf student is capable of hearing. They do NOT make him a "hearing" person. Hearing aids can be used in all activities except swimming and contact sports.

14. Liaison should be maintained with other professional personnel involved with the student, for example, the itinerant teacher of the deaf and staff at the National Acoustic Laboratory (NAL).

SYMPTOMS OF A HEARING LOSS IN SCHOOL-CHILDREN

A class teacher can be aware of the symptoms of a hearing loss and the existence of a hearing defect should be considered a possibility if the following symptoms are strongly evident in the classroom:

1. Turning the head to one side to listen.

2. Inattention resulting in either naughtiness or day-dreaming.

3. Difficulty in understanding spoken language - frequent need for repetition of remarks and mistakes in carrying out instructions.

4. Retardation in schoolwork.

5. Frowning, headaches or other signs of fatigue in the classroom.

6. Frequent errors in spelling and dictation, particularly with consonants.

7. Mis-pronunciation of words, unusual speech quality (monotonous voice) and lack of speech clarity.

8. Chronic ear discharge, frequent colds.

SPECIAL EDUCATION IN AUSTRALIA

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SPECIAL EDUCATION IN AUSTRALIA

B.H. Watts

Since this is the International Year of the Child, I think it is a good moment to find out where we are in Special Education in Australia; to see what gaps there are between what we would like to see happening in terms of our ideals, and what is in fact happening; to try to uncover some of the reasons for the gaps that exist and to speculate about what we must do to overcome them before the next International Year of the Child. As a framework for this task, I propose to use the set of basic values put forward by the Schools Commission Advisory Group on Special Education.(1)

1. Education for all
2. Education appropriate to children's level of development
3. Optimal education settings for handicapped children
4. Sharing the educative process with parents
5. Sharing the educative process with other professionals
6. Education for social participation, for work and for leisure
7. Accountability

This is a reasonable set of values, one to which most people would subscribe. But we need to scrutinize such values, in terms of whether they are in fact achievable. If values are too far from realization, then we have to be very careful that any steps we take lead inevitably towards those particular ends and not towards some other ends that were not intended.

I am concerned that if we express a philosophy that cannot be implemented, we may alienate ourselves from our clients and the community; that when people talk about desired ends as if they were actual achievements, they are indulging in rhetoric. What I want to do here is to distinguish between rhetoric and reality.

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(1) Report of the Special Education Advisory Group to the Schools Commission, December, 1977.

Since World War II there has been an inordinate growth in special schools in Australia. In spite of more recent arguments that the principle of normalization should apply with integration of the handicapped into regular classrooms, one finds a tremendous upsurge in the 50's, 60's and continuing into the 70's, of special schools, and special classes, rather than development of integrated services, although some states, notably New South Wales, have shown preference for special classes rather than special schools for most handicapped children. According to the Schools Commission Report (1978), in the period 1946 to 1976, the number of special schools and classes increased from 119 (1946), to 332 (1956), to 605 (1966), to 1,084 (1976), with the numbers of students growing over that thirty-year period from 3,600 to 35,268. That is an enormous increase, and does not include children in part-time enrolment in special classes.

In New South Wales in 1976, about the same number of children in part-time special classes were receiving help through itinerant teacher services as were in full-time special classes and special schools, government and non-government; the ratio was about one to one. A different pattern is followed by Queensland, Victoria, South Australia and Western Australia where the ratio is 1:2½ or 1:3. In Tasmania and the A.C.T. the ratios are 1:12 and 1:14; the only system in Australia in 1976 devoting most of its effort in special education toward part-time placement and consultant services was the Northern Territory where the ratio of children receiving part-time specialist help to those in special full-time classes was 8:1.

Thus there has been an enormous growth in provision of services for the handicapped since World War II. Is the growth rate slowing? It is very difficult to secure accurate figures and to trace trends in Australia because there is no national system of reporting or storage of data in special education. There is no existing source to provide epidemiological information on numbers of children and types of handicap, and no detailed list of facilities available. If the current phase of normalization and integration is to be monitored, then better statistics will have to be kept. Good longitudinal studies will also be needed to provide information regarding the progress of children to whom we have offered the benefits of special education, whether it be in a special school or class or whether it be in the regular classroom. It is extraordinary that one can go around Australia asking "What was the outcome in the long term?" and hear in reply "We don't have any data on that." I talked to an American researcher who had tried to follow-up a number of children who had been mainstreamed following a series of court cases. Some four years after the court cases had established the mandate for mainstreaming, no information was available on where the children were, or how they were progressing. At that time I hoped very strongly that if Australia did move in this direction, good longitudinal statistics would be kept so that X years after the event we could identify the children who were advantaged, and those who were disadvantaged, by the change. We could then plan new programs on the basis of firm evidence, instead of trying to plan on the basis only of hopes and aspirations.

1 EDUCATION OF ALL HANDICAPPED CHILDREN

Have we reached the stage in Australia where we have education for all handicapped children? In their survey of national education,(1) the Schonell group looked at the legislation and found a number of areas in Australian legislation in which handicapped children are not provided for, or in which such provision is unclear or open to misinterpretation. Only in Victoria, for example, is there provision for children not of school age. When the Assistant Minister for Education in that state presented the relevant bill in the second reading in 1973, he said: "I cannot express too much the importance of this provision whereby our commitment begins at 0 and extends beyond 15 years where appropriate." Victoria is the only state that calls for, under legislation, the early assessment of handicapped children, even though throughout Australia there is wide support for the concept of early intervention for the handicapped. Victorian legislation also recognizes the need for handicapped children to be educated beyond the school leaving age prescribed for non-handicapped children. The Advisory Council for Special Education in Queensland has recently presented a report(2) to the Minister for Education recommending that the State Government should accept responsibility for the education of all handicapped children from 0 to 18 years. It will be interesting to see what eventuates as a result of that recommendation.

In some states the process of amending acts, over time, has resulted in disjointed legislation. An example of this is Queensland

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(1) Andrews, R.J., Berry, P., & Elkins, J., 1979: National Survey of Special Education: Provisions, Needs and Priorities in the Education of Children with Handicaps and Learning Difficulties. Report to the Schools Commission.

(2) Advisory Council for Special Education, 1979: The Roles of Government and the Voluntary Associations in the Education of Handicapped Children in Queensland.

and Tasmania where parents of some handicapped groups have the obligation to supply suitable education for their children. Parents do not have this responsibility if their children are not handicapped. Victoria and Western Australia have the most comprehensive legislation dealing with the assessment and placement of handicapped children of school age. New South Wales and South Australia have no specific provision in the Acts for special education. In no state is the Education Act or the Public Instruction Act free of gaps where handicapped children are concerned. In their study of the legislation, the Schonell team found some usage of the term 'reasonable excuse,' which demonstrates how imprecise the legislation is. In Victoria, it is 'a reasonable excuse' if the child has been prevented from attending school by sickness, reasonable fear of infection, temporary or permanent infirmity or any unavoidable cause. In Western Australia, any of the following reasons shall be deemed a 'reasonable excuse:' the child was prevented from attending school by sickness, danger of infection, temporary or permanent infirmity or any unavoidable cause. The Western Australian Act also contains legislation which discriminates against children with severe mental and physical disorders or disabilities. Where the principal, after an assessment conference, deems the mental disorder or disability to be of so severe a nature that the presence of that child in any Government school would disrupt the normal operation of the school, he is to recommend to the Director-General that the child be made subject to a direction for exclusion and inform the parents in writing that he has made such a recommendation. So children can be exempted from attending or can be prevented from attending.

Looking across the Australian legislation, there appears to be no legislation ensuring parents the right of appeal with respect to directives which the Minister in a particular state can make regarding the education of handicapped children. Some of the legislation which affects the education of handicapped children is not proclaimed in the State Education Act - it is proclaimed under other legislations such as Health or Welfare, and so one finds mental retardation, defined almost as a mental disorder, grouped with mental disorders. For example, the Queensland Backward Persons Act of 1938, which has not yet been repealed, charges the Director of Health with the education and care of backward children. If one looks through the history of legislation in the various states, one finds this sort of pattern repeated.

On the world-wide scene we do not find the inadequacy of legislative concern for handicapped children that we find in Australia. In our country, there has certainly been strong pressure towards legislative revision, in line with the value that all children have a right to education. This has been urged around Australia by Federal groups and in the numerous reports published during the 1970's that make reference to handicapped children. These go beyond the field of education and one finds, for example, the Human Affairs Commissioners making statements about what is right and proper for the education of handicapped children. Every major report that has been released this decade has urged that all children, including handicapped children, have the right to an education. Presumably those who are advocates of the handicapped would want that right to education to operate from birth, or first identification, and would not be happy to see education provisions for the years only to age 15 in the light of what we now know of handicapped children's potential for continuing to grow and develop, provided they are appropriately supported and stimulated, well beyond the age of 15.

Neither is legislation a sufficient achievement. All that legislation really does is a) provide a confirmation of public attitude, since the politicians reflect the public attitude, and b) make it possible for services to be developed and made available. But legislation does not guarantee either the implementation of services or the quality of those services.

2 EDUCATION APPROPRIATE TO CHILDREN'S LEVEL OF DEVELOPMENT

The second of the values the Advisory Group on Special Education proposed was that advocating an education appropriate to each child's level of development. They commented, "Though the majority of handicapped children are enrolled in schools and many of them in regular schools, the demands made upon them, and the curricula to which they are submitted,are often inappropriate for their capacity to benefit from the schooling provided."(1) If I were to ask those of you who are practitioners in special education, 'Are the youngsters in special schools and classes in this state doing as well as they are capable of doing?', what would you answer?

Here are some data on New South Wales from our 1976 Mildly Intellectually Handicapped Children Studies.(2) On the St. Lucia Graded Word Reading Test, for children aged 10.0 to 11.11 at the beginning of that year, the mean reading age was 7.1 with a range from less than 5.3 to more than 13.0. While 34 (17%) of the sample obtained reading ages of 5.3 or less, 56 (28%) achieved reading levels of 7.10 or higher. The majority of scores, 55%, were found in the reading age range of 5.4 to 7.8. The most impressive fact about these data is the extraordinary variability of the group whom we called mildly

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(1) op.cit.

(2) Watts, B.H., Elkins, J., Henry, M.B., Apelt, W.C., Atkinson, J.K. & Cochrane, K.J., 1978: The Education of Mildly Intellectually Handicapped Children in the Eastern States of Australia: Philosophies, Practices and Outcomes. ERDC Report No. 17. A.G.P.S.

intellectually handicapped. Certainly the New South Wales reading scores bear witness to this variability. One cannot draw too many conclusions about what benefit those children would finally secure from education because they had still four to five years of compulsory schooling ahead of them. Most of them were in special classes. In fact, most mildly intellectually handicapped children in New South Wales who had been identified in 1976 were in special (OA) classes. Most of them would have gone on into high school, and we must ask how much opportunity they would have had to continue growing at their own rate. There was a group of youngsters who had not, at age 10-11 years, passed that barrier around the seven-year reading level. One should be a little perturbed that there was such a large percentage of OA pupils still at that stage after five or six years at school.

Education for handicapped youngsters is not just a matter of learning to read. There are many things that education ought to be about; but it is difficult to argue that reading should not be achievable, and given some priority, for these children. Some argue that there are things in life more important for these children than reading, as if one had to choose either to help them learn to read or help them learn to do something else. This is a false dichotomy. Many of the goals we would want for these children can be achieved, or movement towards those goals can be achieved, by a program designed to help them to learn to read. Those who leave school not able to read will be disadvantaged in many mundane as well as more esoteric ways.

Apparently no-one knows how many handicapped students are receiving an education appropriate to their levels of development.

3 OPTIMAL EDUCATIONAL SETTINGS FOR HANDICAPPED CHILDREN

The third value cited by the Advisory Group was the provision of an optimal educational setting for each child. The Schools Commission supported the general principle that there are benefits to all children from meeting, working and playing with a range of children in their community. Thus, in this view, neighbourhood schools should be equipped to provide appropriate education for all children with their peers, with maximum opportunity to participate in and be accepted by the general community, except where it can be demonstrated that the interests of the child will be better served in a segregated educational setting. If the child does have to be segregated, care should be taken to ensure that the degree of segregation is minimal, with effort directed towards equipping the child for integration into regular education should this later prove possible.

In defining what constitutes an educational opportunity for children, we need to be concerned about the attitudes and competencies of their teachers and the support the system makes available to those teachers. In the teacher questionnaire used in the Schonell study, teachers who taught in normal schools were asked questions on a range of subjects related to the education of mildly handicapped children. In one question, teachers were asked:

> "Here are four settings in which a mildly intellectually handicapped pupil can be placed:
>
> 1. regular school
> 2. regular school with support services
> 3. a special class attached to a regular school
> 4. a special school.
>
> Would you rank order them in terms of your preference for the mildly intellectually handicapped child when you are thinking about
>
> a) his academic progress, and
> b) his feelings of self-worth."

In results from two groups of New South Wales teachers (regular and special class), 41% voted for a special class to enhance the mildly intellectually handicapped child's academic progress, 33% preferred a regular class with support and 23% selected a special school. When the focus was on self-worth, 42% of the regular teachers selected regular classes with support, followed very closely by 33% who believed the child's self-worth would be fostered best in a special class; 17% argued the benefits of the regular classroom. (2% were not accounted for.) This provides a little information about the attitudes of the teachers in the field who must work with mildly intellectually handicapped children if they are integrated into normal classrooms.

In another question, teachers were asked if they believed that pupils diagnosed as mildly intellectually handicapped should be retained in the regular classroom or placed in special classes or schools; if they believed special class or school placement should be made, they were asked to state the characteristics of the students they would like to see in such special placements. Poor achievement, or inability to cope with school work, was cited as a reason by 21% of regular teachers in New South Wales. A further 21% cited learning difficulties, including low IQ, while 17% cited classroom disruptions as reasons for special class placement.

A few questions were asked to ascertain stereotypes about the mildly intellectually handicapped student. For example, 75% of regular classroom teachers disagreed with the following statement:

> "Being placed in a special class in a regular school restricts the chance for a pupil to participate fully in activities such as clubs and sports normally available to normal classroom pupils."

Regarding special class placement, 57% of the teachers disagreed with:

> "A child's out-of-school social contacts are restricted when he is placed in a special class in a regular school."

One of the justifications for normalization and for placing children in regular education settings is that they will get the chance to learn to interact with children who are not handicapped, and the non-handicapped will have a chance to interact with them. Yet 27% of teachers from New South Wales regular schools disagreed with the statements:

> "If placed in regular classes, most mildly intellectually handicapped pupils would participate in school activities to about the same extent as other pupils" and

> "With appropriate help, most mildly intellectually handicapped pupils can function socially at their own age level."

However, 82% agreed with the statements. It could be argued that this result is not in accord with some of the other judgments that were received.

What about derogatory labels? If a child is placed in a special class he is labelled. Of course, special class teachers say if you leave him in a regular class he is labelled there also. Teachers were asked whether they were aware of any derogatory labels attached to special classes or schools, or to pupils enrolled in them, or of any derogatory labels attached to mildly intellectually handicapped pupils in the regular classroom by other pupils. Twenty percent of the New South Wales regular class teachers believed mildly intellectually handicapped children received derogatory labels in both settings.

I am not opposed to the philosophy of normalization; I believe it is just, humane and democratic. But will we do all the things that are necessary to translate it into a viable set of practices? One more set of figures is worth reporting here - and these are key figures, when we are talking about putting children in various settings. We sought information on teacher competence and perceptions of competence, as judged by their colleagues. One question asked was: "Do you think most regular classroom teachers feel they have the skills to teach mildly intellectually handicapped pupils?" In New South Wales, 24% of the regular teachers thought their colleagues felt they had such skills. But this number increased to 70% when we added the rider, "when they have access to support services." So 7 out of every 10 of the regular teachers who filled in that questionnaire believed their colleagues _felt_ competent to handle the needs of mildly intellectually handicapped students when they had support services. In answer to the question: "Do regular teachers meet the needs of handicapped children?", only 17% of the regular teachers responded positively, the percentage rising to 59% when there were support services available.

When teachers were asked, "Do you think you are capable of teaching mildly intellectually handicapped pupils in your present teaching situation?", only 28% answered 'yes.' It should be noted that the questions related to children aged 10-11 years of age. Different results might have been achieved if the study had been carried out on secondary school students and their teachers. Results from such a study might be even more pessimistic than the results reported here for primary-aged children.

When the Schonell Centre carried out this study in 1976, the New South Wales sample included six schools that had formerly had OA classes and which had just moved to having resource teachers. A special case study was made of those schools. The researcher who carried out the field work in those towns was able to see a few parents, and teachers were asked about resource teachers and remedial teachers. The results of this study are reported in detail in the research report;(1) some general results are worth examining. Support personnel are intended to help the regular teacher maintain children in her classroom but what tended to happen, in some of the schools in the 1976 sample, was that the resource teacher enacted primarily a withdrawal role, in essence carrying out remedial teaching. This was not helping the classroom teacher to become more skilled in meeting the needs of handicapped children. Neither, in the long term, was it helping the handicapped pupils if there was a chasm between what they did in the resource room and what they went back to in the regular classroom. In theory the resource teacher concept seems good, but certain conditions may be necessary to ensure success of this strategy. In their pre-service and in-service training, regular classroom teachers are not prepared to work with other specialists such as resource personnel. Without such training they may not utilize well the services of the specialists. We could ask, also, whether all resource teachers receive special training? This seems to vary from state to state. Unless we can demonstrate to teachers how resource personnel can help them, and unless we can adequately train regular and resource teachers to work together productively, then the whole resource teacher concept will fail to function as effectively as it should.

In the Schonell National Survey (1979) all special, primary and secondary schools in Australia were surveyed, in an attempt to obtain a census of handicapped children. In addition, the ACER drew a special sample of just over 800 primary and secondary schools that were asked to identify not only children with handicaps, but children who had learning and behavioural difficulties. From school responses, the following incidences or prevalences were calculated: 1.96% of students in regular schools had a handicapping condition; 13.9 per 1,000 had mild mental handicaps; 2.4 per 1,000 had hearing problems; 1.9 per 1,000 had physical handicaps; 0.7 per 1,000 had visual handicaps and 0.6 per 1,000 had moderate to severe intellectual handicaps. There were some variations between states but it seemed that of the schools which responded, 90% of those enrolling children with handicaps indicated that they had some support personnel available.

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(1) op.cit., Chapter 10.

The Schonell Survey used the following definitions of learning and behaviour difficulties:

1) Students with learning difficulties were defined as:
   those who display continuing difficulties in basic school learning, such that they fail to respond to the usual range in teaching strategies employed by regular classroom teachers and who in the principal's opinion require the support of specially trained personnel.
2) Students with behavioural difficulties were:
   those who display continuing behavioural and adjustment difficulties such that they fail to respond to the usual range of management strategies employed by regular classroom teachers and who in the principal's opinion require the support of specially trained personnel.

The prevalence rate for learning difficulties was 11% and for behavioural difficulties 3.2%. In the government primary and secondary schools, the interesting factor is the percentage of children identified by their schools as having learning difficulties for whom help or support was available. It was fewer than half at the primary level (47%). At the secondary level, the percentage receiving support was higher (56%).

In relation to behavioural difficulties, the incidence was lower: 3% of primary and 4% of secondary pupils. However, only one in five of the primary children with behaviour problems received support, compared with one in two at the secondary level.

In the non-government sector at primary and secondary levels in the area of learning difficulties, there was a somewhat lower incidence with a somewhat higher percentage of children receiving some support. There was also a lower incidence of behavioural difficulties than in the government sector and again a higher proportion was given some support.

There are data on the percentage of schools with selected proportions of children with learning difficulties. If we look at the girls in 175 primary schools, we find that just over half of the schools have no children in the kindergarten year (the pre-formal year) with learning difficulties. In year 1 only 35% of schools are able to say that they have no girls with learning difficulties, and in years 2 to 7, 30% of schools report no girls with learning difficulties.

Around 14-16% of schools across those year levels have from 1 to 5% of the girls in their classes with learning disabilities. In year 5, 3% of the schools identify 26 to 30% of the girls as having learning difficulties, and in the remaining primary grades, on average, 5% of 175 schools have more than 25% of the girls with learning difficulties - interestingly the grade 7 figure in primary schools is only 2% whereas in the secondary school sample (129 schools) about 12% of schools reported over 25% of the girls with learning difficulties in year 7. The incidence of learning difficulties for boys at primary and secondary levels was of course higher. On behavioural problems, 80% of primary schools reported no girls with behaviour difficulties that could not be controlled by normal management strategies, but only around 50% of primary schools reported this situation in respect to boys, while in the secondary schools in years 7, 8 and 9 it is only approximately half of the schools that have no girls with behaviour problems. While 39% of the schools have no boys with behaviour difficulties at year 7, 35% have none at year 8, and 34% have none at year 9. I have put forward these figures not to denigrate integration and normalization but to suggest if we are to place the challenge of children with handicaps in the hands of teachers who, by and large, are without special training, then what can we really expect to happen?

4 SHARING THE EDUCATIVE PROCESS WITH PARENTS

The Schools Commission consultative group note, and we all know, that children gain when teachers and parents share the educative experience. Back in 1976, when holding discussions with the parents in their own homes, we tried to find out a number of things about their interaction with schools, and what they wanted of schools. Let me cite one fact for New South Wales. We asked parents how often they met the teacher, whether they would like more or less contact and why? We had almost 40% from whom we could not get a meaningful answer. This could have been due to one or more of a variety of reasons. For example, when one does sit down and talk with people in an interview rather than mailing a questionnaire, one finds that a question which seemed perfectly sensible when it was devised does not make sense to a parent. Those who talk of the necessity for parents to be involved in schools might do well to remember that we are working with a very heterogeneous group of parents when our concern is special education; certainly, among parents of the mildly handicapped, many would have had little satisfaction from their own schooling. Of the parents we questioned, 29% had visits with the school once a term or more, and of those, only 6% wanted more contact than they had; 23% were satisfied with this rate of contact. Contact less frequent than once a term was cited by 32% of parents; 13% would have liked to have more contact and 19% were satisfied. That is an important fact; I think there are many reasons behind it, and one would do many things about it. But it is ignoring reality to say that all or most parents are eager to be involved in the schools. Some who are eager are rebuffed. Some are welcomed by the school. We tried to ascertain from the special schools we surveyed, the extent of parental involvement in school management. In general, there was relatively low parental involvement in decisions about teaching methods, in consultation about admission of children and in decisions about equipment purchases.

On the question of consultation about admission of children to special schools and classes, when I was in this state undertaking the 1976 study, I found that I was introducing myself to parents and saying that I was interested in Johnny, only to find as the interview went on that Mum did not know that Johnny was in the OA class.

5 SHARING THE EDUCATIVE PROCESS WITH OTHER PROFESSIONALS

I do not think any of us have begun to solve the problem of how to help one set of professionals to interact non-defensively, productively and in a relaxed fashion with another group of professionals. Are there any good programs in New South Wales? When will we replicate the services that we currently offer intensively to some small groups, so that they are available to the community at large? If one looks at the wide dispersion of children with handicaps around the nation, one must conclude that there are not too many places where there is the opportunity for inter-professional agreement and co-operation.

6 EDUCATION FOR SOCIAL PARTICIPATION, FOR WORK AND FOR LEISURE

The education process is life-long. Schools cannot be isolated from what a child experiences in the pre-school period. Neither can they be separated from what he experiences in the post-school years. In recognition of the importance of the post-school period to the total life-adjustment of the handicapped, education must acknowledge the critical importance of preparation for social participation, for work, and for leisure, by the provision of programs which will prepare handicapped children for the maximum participation possible in these aspects of their future lives.

The Schonell National Survey reports that some 87% of special schools provided counselling and training in social skills and behaviour, including personal hygiene, deportment, dress, appearance, diet, and sex education, and only 4% actually stated that they did not (missing data = 8%). About half the schools used a curriculum with some structured aspects, about a quarter used a highly-structured program, and a little less than 10% used informal procedures. Independent living skills (cooking, washing, housekeeping, telephone, post office, bank, shopping, etc.) received attention from a very high proportion of the schools.

Information was sought on whether special schools provided services to assist in the transition from school to adult life. Forty-five percent provided vocational or employment counselling, 35% employment sessions in a sheltered workshop, 47% employment experience in open industry, 58% training sessions in an activity therapy centre, and 22% reported other programs assisting in the transition from school. In the light of current international and national interest in the transition from school to adult life, particularly work, the low level of support provided by schools is of some concern.

7 ACCOUNTABILITY

Accountability at varying levels and of varying types is necessary in the conceptualization, organization and implementation of education for handicapped children. Governments must be accountable to the community through legislation and through provisions to ensure that all handicapped children have the right to education.

Administrators must recognize that they are accountable to those individuals and groups served by the programs they control. Pursuit of the principles of appropriate programming, maximum useful association, sharing the educative process and associated concepts, will help to ensure this accountability. Special interest groups and broadly-based community groups must account for their policies and provisions insofar as they serve the educational needs of handicapped children. They must be accountable to parents and the community for the support they receive whether that support be philosophical, emotional or financial. At a professional and personal level, teachers and other persons must be accountable for the quality and relevance of their programs in the development and education of the handicapped children for whom they are daily responsible.

We talk about accountability, we sometimes become apprehensive about accountability but, it seems to me, we do very little about it.

There may be values other than those I have described to which you subscribe. But, whatever one believes is right and proper for handicapped children, there is a need to recognize that it takes a great deal of hard work to turn good ideas into good practice: to turn pleasing rhetoric into pleasing reality. The types of variables that I think we ought to be looking at, the things that intervene between our philosophies and tried outcomes, are shown in Figure 1:

Figure 1 about here

One of the realities that would be interesting to test is the argument that if one places a child with handicaps with children without handicaps, they learn to get along well, and will all grow up much more tolerant, accepting and enriched people. This might well be true in the case of a child with a major physical handicap. It is possibly not true in the case of a child with a mild handicap, whether the handicap is mental, physical or sensory. The mild handicap is by definition not nearly as noticeable as the major one. If one child is holding the rest back from something they want to do and there is an obvious reason presenting itself through a major handicap, I believe children will be likely to take that into account and to modify what it is that they are asking of the handicapped child; but I think they often forget and do not take it into account when the child has a mild handicap.

The child is unique and that is the most important thing about him, whether we put a label around his neck and put him in a special school or whether we do not label him and put him in a regular school.

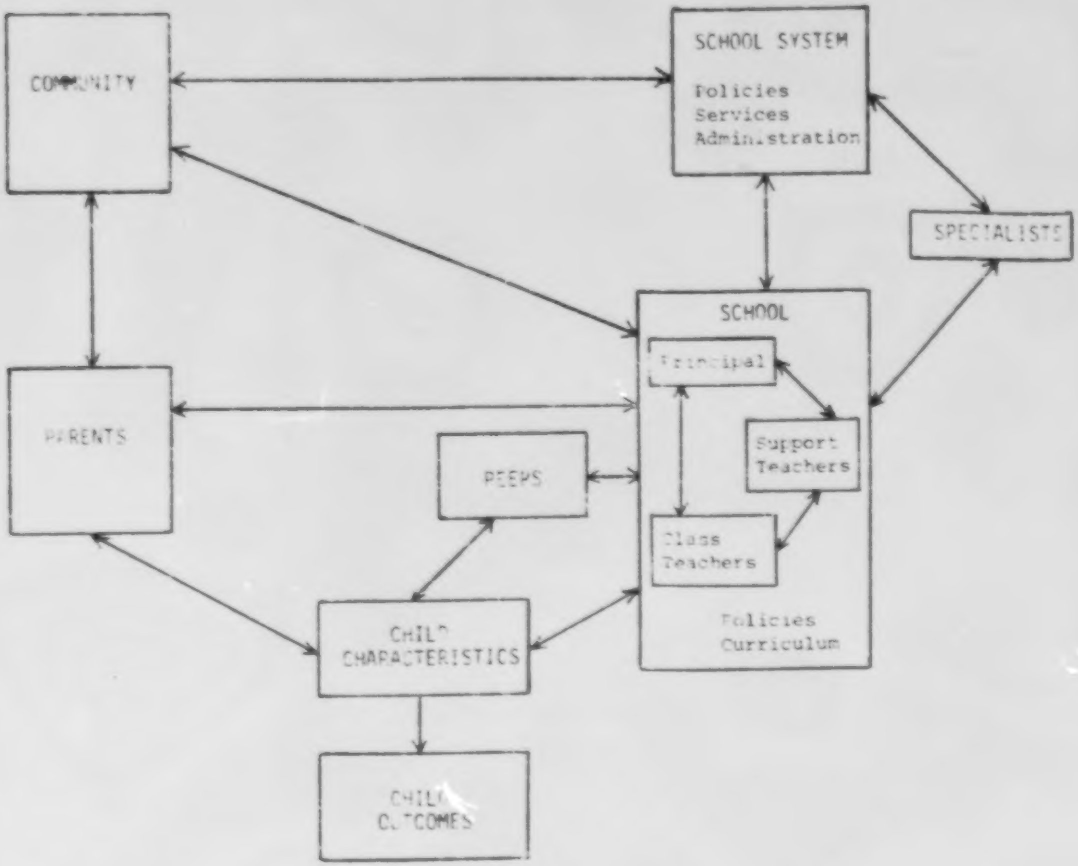
Finally, we must look at child outcomes, which is really what education is all about, in the short term and the long term.

These variables all interact together, in all possible combinations. So what are the implications of this: what does the community think, and can it be effectively changed? If the parents do not believe that what educators want to do is right, then we as educators have a moral responsibility not to have our will with children but to try to persuade the parents to understand and agree to what we believe in our professional judgment to be right. The school system itself must take very seriously the implications of any policy for handicapped children that it is going to promulgate, and particularly must make sure that there is support, not only to regular but to special schools. I think that the special schools do not always take full advantage of the range and extent of system support available to them. We must realize the reality of the peer group and its influence and work to arrange settings that will stimulate peer interaction and be growth-promoting for everyone. We must also take into account the nature of the child himself.

When I return from my next reincarnation, I would like to be here for the next International Year of the Child - I would like to be here in 1981 for the International Year of the Disabled. I would like to look at 1981 from the 1979 perspective. Most of the information we have talked about tonight is not current - it was gathered in 1976 or

1978 - and we know (or hope) that things change quickly. I would like to see what directions occur in the next two years - which of the present directions become intensified. I would be particularly interested, at conferences in 1981, if people can bring some hard data - some longitudinal data that really shed light on what is happening to children and why it is happening.

Figure 1
Variables Intervening between Policies and Outcomes


COMMUNITY
SCHOOL SYSTEM
Policies
Services
Administration
SPECIALISTS
SCHOOL
Principal
Support Teachers
Class Teachers
Policies
Curriculum
PARENTS
PEERS
CHILD CHARACTERISTICS
CHILD OUTCOMES

REHABILITATION OF PERSONS WITH HANDICAPS

by

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REHABILITATION OF PERSONS WITH HANDICAPS

Donn E. Brolin

Historically, persons with handicapped conditions have been stigmatized as something less than socially and vocationally capable of "normal" functioning. As Wolfensberger (1972) explains, being considered a deviant person carries with it such role expectations as being "subhuman, a menace, an object of dread, a diseased organism, an object of ridicule, an object of pity, an eternal child, and a holy innocent" (p. 16). In the vast majority of societies, handicapped persons are negatively perceived by most individuals and expectations are generally quite low. Parents, professional workers, politicians, employers, and the general public often underestimate what most handicapped persons could accomplish if they were given adequate opportunities.

In the past decade, the American society has changed dramatically in its attitude toward providing appropriate opportunities for its handicapped citizens. This has not happened overnight but through a slowly building force of advocates representing professional organizations, parents, and handicapped persons themselves. These groups, along with many researchers, clearly demonstrated that the majority of handicapped persons were not succeeding as productive adults despite the potential to be independent, contributing citizens. This paper will attempt to trace the major forces and activities that have shaped the improvement of education and rehabilitation services in America and relate their implications to the Australian scene, with a special emphasis on a new American innovation, career education.

Legislation

During the 1960's and 1970's, numerous legal suits and judicial decision relative to the rights of handicapped individuals swept through America. One of the most significant was that of the

Pennsylvania Association for Retarded Children versus Commonwealth of Pennsylvania (1971). The Association, representing parents of thirteen retarded children, claimed that the state of Pennsylvania was not providing public education for all retarded students, basing its case on the right of every American child to an education. The plaintiff's lawyer was able to elicit testimony that established the ability of mentally retarded individuals to profit from education and contribute to society. The U.S. District court ordered the state to provide the necessary education and rejected the argument that there was a lack of funds, personnel and facilities. The Pennsylvania case was a major breakthrough on behalf of the rights of handicapped individuals to receive an appropriate education by:

1. Establishing the concept that every normal and handicapped child had a right to an education program appropriate to his ability ;
2. Establishing the precedent that a state has the obligation to provide the personnel and resources to meet the instructional needs of the child;
3. Itemizing a due process procedure whereby parents and students would be able to approve or challenge the school system's action on a change of educational status to the extent that the final decision would be settled in the courts, if necessary; and
4. Establishing the necessity of fulfilling an individual's present rights (i.e., those that must be immediately exercised and safeguarded).

(Brolin & Kokaska, 1979)

The Pennsylvania decision and many subsequent suits led to new state laws for more responsible educational practices for handicapped children. In 1975, a federal Act was passed establishing the federal government's commitment to a full and appropriate free education for all handicapped children ages 3 - 21. This Education for All Handicapped Children Act (PL 94-142) became effective

October 1, 1977 for all handicapped children ...

> A free appropriate public education which emphasizes special education and related services designed to meet their unique needs, to assure that the rights of handicapped children and their parents or guardians are protected, to assist States and localities to provide for the education of all handicapped children, and to assess and assure the effectiveness of efforts to educate handicapped children. (Section 601 of the Act).

Supported by funding unprecedented in the history of educating handicapped individuals, local education agencies (LEAs) were required to establish Individualized Education Programs (IEPs) for each student to be reviewed at least annually and provide written statements specifying:

1. The student's present levels of educational performance.
2. Annual goals and short-term instructional objectives.
3. Specific special education and related services to be provided.
4. Projected dates for initiation of services and the anticipated duration of each.
5. Appropriate objective criteria, evaluation procedures, and evaluation schedule.

(Brolin & Kokaska, 1979, p 26)

The parents and the professional team determine and agree upon the IEP and the "least restrictive setting" together. Due process procedures built into the Act assure parents the opportunity to appeal to legal authorities if they do not agree with school decisions and recommendations. Public Law 94-142 rightfully deserves to be labeled as a "Bill of Rights" and is slowly but steadily changing the pulse of educational activity for handicapped students throughout America.

The other significant piece of legislation that has had a profound influence on rehabilitation practices in the U.S.A. is the Rehabilitation Act Amendments of 1973, P.L. 93-112. It requires rehabilitation efforts to focus on the more severely disabled person - not the mildly handicapped as in the past. Section 503 requires employers to initiate "affirmative action" policies to better assure the hiring, training, advancement and retention of qualified handicapped workers by those who have federal contracts. Of particular significance is Section 504 which has been described as the most comprehensive civil rights protection ever extended to handicapped individuals in America. It states:

> No otherwise qualified handicapped individual ... shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

This means that programs must be accessible, public education is to be free as reaffirmed in PL 94-142, all new facilities are to be barrier free, and program personnel must abolish all materials and practises that discriminate against handicapped individuals (e.g., admission procedures, testing, hiring, etc.). An office for Civil Rights is attempting to monitor this legislation.

Thus, in the 1970's, federal and state laws have been instituted to remedy the educational and rehabilitation deficiencies existing for persons with handicaps. The recent creation of a new federal Department of Education (from Health, Education and Welfare) has consolidated rehabilitation and education programs under one director. This should better assure a continuum of lifelong rehabilitation services to handicapped individuals.

Research and Training

As the education and rehabilitation movement has gone forward, there has been a rapid development of research and training efforts in America. Some examples of these include three Research & Training Centers in Mental Retardation at the Universities of Oregon, Wisconsin and Texas Tech University. The centres, funded by the Federal Rehabilitation Services Administration (RSA) have operated over ten years and have developed improved vocational rehabilitation methodologies for training retarded persons. They all conduct short-term training programs for practitioners to learn these techniques. An R & T Center at the University of Wisconsin-Stout focuses on vocational assessment research and training endeavours. Regional Rehabilitation Continuing Education Projects in all RSA regions provide a variety of additional inservice training for rehabilitation practitioners. There are also over 100 undergraduate and graduate rehabilitation education training programs turning out hundreds of counsellors, evaluators and job placement specialists each year.

The Bureau of Education for the Handicapped (BEH) is the federal agency responsible for the education of handicapped students. This agency has been heavily committed to career/vocational education projects that can design and disseminate new (re)habilitative approaches for school populations. Many projects in the past several years have resulted in such an impact to happen for handicapped students to make curricula more career/vocational based and at an earlier age. Many special education teacher programs are now hiring career/vocational special educators to meet the changing needs of school curriculum. In addition, many colleges and university special educators are providing practitioners with inservice training in career/vocational education techniques. State Departments of Special Education are providing more and more funds for this purpose.

Professional Organizations

Further evidence of the movement toward a (re)habilitation orientation in American education during the seventies was the establishment of two new professional divisions within existing national education organizations. In 1975, the National Association of Vocational Education Special Needs Personnel (NAVESNP) was created within the American Vocational Association (AVA). Then in 1976, a Division on Career Development (DCD) was created within the Council for Exceptional Children (CEC). CEC endorsed career education by issuing its own position statement (1978), holding two Vocational Conferences on the topic (1973 and 1979) and by being involved in a number of projects and publications on career/vocational education for the handicapped. Both NAVESNP and DCD have made rapid strides in promoting career education through collaborative efforts, their own publications, legislative endeavours, research, and inservice and pre-service activities.

The above two new organizations relate to the more established National Rehabilitation Association (NRA) and one of its divisions, The Vocational Evaluation and Work Adjustment Association (VEWAA), which have focused their efforts until recently on adult handicapped. The opportunity to interact with these two educational organizations, NAVESNP and DCD, should result in a greater continuum of services for handicapped individuals from childhood through adulthood.

Vocational Assessment

If there is one thing we have learned over the years it is that preparation for work is a much more complex phenomenon than was previously supposed. A work personality appears to develop fairly early, therefore it is important to identify specific abilities and needs of each child so they can be more fully developed during these formative years. Thus, many schools in the U.S.A. are initiating formalized vocational assessment programs.

A diverse array of standardized career/vocational tests are presently available but most have limited usefulness with most young handicapped students. Two particularly useful techniques of vocational assessment are work samples and work experiences.

Work or job samples are close simulations of actual industrial operations, not different in its essentials from the kind of work a potential employee would be required to perform on an ordinary job (Neff, 1968). In the past several years, a substantial number of work evaluation systems (e.g. JEVS Work Samples, Micro-Tower, Singer Vocational Evaluation System) have been developed to assess vocational potentials of various types of handicapped persons. In most cases the various work samples comprising such batteries relate to specific jobs or job families listed in the U.S. Department of Labor publication the Dictionary of Occupational Titles. These batteries of work samples provide students with a stimulating hands-on method to explore job interests and aptitudes under fairly standardized conditions. Some require no reading or little such skills; others utilize audio-visual techniques to transmit instructions. Depending on the system(s) used, evaluation takes from a few hours to several days. Most of the systems cost several thousand dollars which is a limitation in their purchase by most schools.

Establishing work experiences in and out of the school setting is another widely used technique in American schools. Assembly lines, simulated store operations, classroom work assignments are examples of in-school work activities that can be used for assessment as well as training. The use of the school cafeteria, library, gym, maintenance, clerical and other school departments have been used extensively. Some schools set up their own sheltered workshop. The actual work site in business and industry is the most realistic of all vocational assessment procedures. However, they are difficult to get for younger students and suffer the problems of control and standardization. Careful placement and organization are critical in gathering accurate assessment data in the real work place. There is often a tendency to give students a "halo" rating and not to provide the time, attention and variety of experiences they need.

Vocational assessment using work experiences requires more than Work Behaviour Rating Forms as these are highly susceptible to error. Actual work production figures are important indices of ability to perform in a real work setting.

Career Education

Despite the many innovations and improvements of recent years, studies and expert opinion does not depict a favourable outcome for persons with handicaps after they leave American schools. Schworles (1976) indicated that about two million handicapped students left without salable skills. Biklen and Bogden (1976) reported that approximately 85 percent of people with disabilities have incomes less than $7,000 per year and about half of these make less than $2,000. Levitan and Taggart (1977) found that only 40 percent of all disabled adults are employed compared to 74 percent of non-disabled persons. Bowe (1978) concluded that two-thirds of all adults with handicaps are at or near the poverty level.

However, the legislation mentioned previously is just getting underway, as are massive efforts by schools to introduce a substantial career education component into their curricula. Although originally introduced in 1971 by the U.S. Commissioner of Education as a major educational reform, the concept has just recently begun making a substantial impact on school systems because change comes slowly. But, during the decade of the seventies a wide array of research and development projects demonstrated the efficacy of this approach to the education of the handicapped (as well as the non-handicapped).

Career education is a broader concept although definitions have ranged from those which are primarily work/job centered to those who believe one's career is multifaceted and consists of the various roles one assumes in his or her lifetime, i.e., student, avocational, vocational, family, civic/volunteer and retiree. Career education wholeheartedly endorses the word work and the work ethic but it also includes unpaid activities as well as those that are paid. The most widely accepted conceptualization of career education in America today is that it is a sequence of carefully planned educational activities designed to assist individuals in their career development, focusing on the knowledge, skills and attitudes one needs for the various life roles and settings which comprise one's life, including paid work. In essence career education can be described as the following:

- It is an extension from early childhood through the retirement years.
- It focuses on the full development of all individuals.
- It provides the knowledge, skills and understandings needed by individuals to master their environment.
- It emphasizes daily living, personal-social, and occupational skills development at all levels and ages.
- It encompasses the total curriculum of the school and provides a unified approach to education for life.
- It is a life centered approach which focuses on the total life roles, settings, and events and their relationships which are important in the lives of individuals, including those that pertain to work.
- It encourages all members of the school community to have a shared responsibility and a mutual cooperative relationship among the various disciplines.
- It includes learning in the home, private and public agencies, and the employment community as well as in the school.
- It encourages all teachers to relate their subject matter to its career implications.
- It includes basic education, citizenship, family responsibility, and other important education objectives.
- It provides for career awareness, orientation, exploration, and skills development at all levels and ages.
- It provides a balance of content and experiential learning, permitting hands on occupational activities.
- It provides a personal framework to help individuals plan their lives including career decision making.
- It provides for the acquisition of a saleable occupational entry level skill upon leaving high school.

- It is a life long education based on principles related to total individual development.
- It actively involves the parents in all phases of education.
- It actively involves the community in all phases of education.
- It encourages open communication between students, teachers, parents, and the community.

(Brolin, 1978)

Career education is a total educational concept. Traditional education has focused primarily on knowledge rather than skills. Consequently, most skills needed for community functioning are often omitted. This is particularly detrimental to the career development of handicapped students who must learn life skills at school, as well as in the home, if they are to compete with their normal counterparts. But unfortunately, most handicapped students do not learn life skills because they do not generally have a change of community experiences (e.g., part-time jobs, housework duties, social interactions) like non-handicapped persons (Brolin and Gysbers, 1979).

Life-Centered Career Education

Over the past several years this writer has engaged in substantial research and development activities to identify the critical life skills that handicapped students will need later in life for successful living and working. Based on our efforts with school systems across America, 22 major competencies falling into three categories have been identified as critical for successful career development. These competencies categorized as either daily living, personal-social, or occupational skills, are described in a curriculum guide entitled Life-Centered Career Education: A Competency-Based Approach (Brolin, 1978) and are as follows:

Daily Living Skills

1. Managing family finances.
2. Selecting, managing and maintaining a home.
3. Caring for Personal needs.

4. Raising children, enriching family living.
5. Buying and preparing food.
6. Buying and caring for clothing.
7. Engaging in civic activities.
8. Utilizing recreation and leisure.
9. Getting around the community.

Personal-Social Skills

10. Acquiring self awareness.
11. Acquiring self confidence.
12. Achieving socially responsible behaviour.
13. Maintaining good interpersonnel skills.
14. Achieving independence.
15. Achieving problem solving skills.
16. Communicating adequately with others.

Occupational skills

17. Knowing and exploring occupational possibilities.
18. Selecting and planning occupational choices.
19. Exhibiting appropriate work habits and behaviours.
20. Exhibiting sufficient physical-manual skills.
21. Obtaining a specific occupational skill.
22. Seeking, securing and maintaining employment.

The 22 competencies are clearly compatible to the career education concept. They should be taught in relation to the four developmental stages of career education: awareness, exploration, preparation and placement. A Trainer's Guide for Life Centered Career Education (Brolin, McKay and West, 1978) provides materials for training personnel to implement the career education curriculum approach.

Career education is the most significant advancement in American education in recent years. It requires the active participation of the entire school community, family agencies, and the business-industrial sector to be totally effective. Career education is not intended to replace traditional education but rather to rejuvenate it and make it more meaningful and relevant.

Implications for Australia

In Australia, career education and other rehabilitation concepts are slowly gaining momentum. However, the present unemployment situation and general lower expectation level for handicapped individuals has made rehabilitation efforts appear relatively minimal. In addition, it is easier for handicapped persons to be declared unemployable and acquire social security benefits than in America. Training programs in colleges and universities in career education for the handicapped and in rehabilitation are proportionately much fewer in Australia. Thus, there is not the professionally trained manpower to carry out career/vocational rehabilitation programs as in the U.S.A. Funding sources, including those for research and development are far less available in Australia.

But there appears a substantially gathering movement from concerned professional and lay people who are preparing to demand and bring about the types of changes that are vitally needed for handicapped people in Australia. Career education and rehabilitation concepts are clearly viable and necessary if the past injustices to the work and dignity of persons with handicaps are to be corrected. Advocate groups must become more active and effective if the rights of the handicapped are going to be met. More substantial legislation backed by enough money will also probably aid the cause greatly.

The rehabilitation movement in America has concluded that school systems must begin concentrated efforts earlier if career development is to successfully occur for the people with handicaps. Teachers are a key to this effort and must be supported by administrators, parents and the community. The following suggestions are presented for school personnel.

1. Expect more than the handicapping label denotes -- believe almost nothing is impossible.
2. Teach subject matter in relation to its career implications.
3. Begin attempting to develop necessary life skills immediately (competencies).
4. Listen to and involve the parents meaningfully in the education program.
5. Involve community resources, use them and learn from them.
6. Listen more to the handicapped student -- his interests, needs, aspirations, problems.
7. Spend more time on personal-social skills development (particularly self-concept)
8. Provide as many hands-on/experiential learning opportunities as possible.
9. Accept and understand each student as a unique human being, worthy of respect.
10. Create a psychologically safe learning environment.
11. Serve as an adult model who demonstrates compassion and empathy.
12. Encourage success in each student and positively reinforce accomplishments.
13. Realize that how one teaches is as important as what one teaches.
14. Work in cooperation with other teachers rather than in isolation.
15. Frequently and honestly evaluate each students progress - change if necessary.

16. Keep abreast of latest techniques/ changes in education practices and share them.
17. Make the student feel included in the classroom activities.
18. Provide relevant instructional materials for each child.
19. Make clear expectations and classroom rules and routine.
20. Be patient and flexible.

Obviously the above principles are critical ones for all children and their educational development. Schools must respond to this need if handicapped students are going to attain a satisfactory level of achievement and integration into the Australian society.

CONCLUSION

Rapid changes are occurring in America that reflect a new era of opportunity for persons with handicaps to take their rightful place in society. Much remains to be done but the wheels have been put into motion. Australia can benefit from the American experience so its handicapped citizens are afforded the opportunity for a more self-sufficient and satisfying adult life.

Career development needs to begin early in the school years. Competency based curricula and higher expectations for handicapped children will increase their abilities for independent living and working in the community after they leave school. The fact that there is high unemployment should not deter efforts to prepare those handicapped persons who wish to attain open employment someday.

Many different agencies and organizations will have to work more cooperatively together and interface with advocates, parents, and the handicapped themselves to meet this challenge. I believe such efforts are well under way in Australia, and that persons with handicaps will be much better served in future years.

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RESEARCH TO PRACTICE IN MENTAL HANDICAP

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RESEARCH TO PRACTICE IN MENTAL HANDICAP

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The importance of the above topic is underlined by its adoption as the theme of the Fourth I.A.S.S.M.D. Congress in Washington, 1976. Most of us would agree with the following extract from the opening address of that congress:

> "...science must contribute not only to our knowledge of the world around us but also to the solution of human problems. There are few conditions more vexing, more complex, more costly to Society, and more devastating in their impact on individuals and families than mental retardation."
>
> (Begab, 1977).

If we review the previous decade, we find that considerable advances have been made in the field of mental handicap. There has been international agreement on classification, the United Nations Declaration of General and Specific Rights, legislation to bring mentally handicapped children into the education system, legislation to speed up deinstitutionalisation, to promote 'normalisation' and to facilitate integration, programmes of prevention and genetic counselling, headstart programmes, and the accreditation of service delivery systems. Philosophies have shifted, legislation has followed, and mentally handicapped people in even greater numbers are living and working in the community.

A source of disappointment and concern, however, must be the continuing gap between research and practice. Although a great deal is now known, and demonstration projects have shown what is feasible, the truth is that research findings have so far been of benefit to only a small minority of individuals. The proportion of national budgets spent on supporting research in mental handicap continues to be a very small percentage compared with the amount expended on actually providing services for mentally handicapped people and their families. This paper hopes to make some contribution towards an understanding of the problems of applying research to practice and describes a particular strategy adopted by our own project.

The Nature of the Problem

Mental handicap is a very divided field. Administratively, it is divided between health, social services, education and employment. It is even more divided professionally, between an extraordinary array of specialists each with their own approach, their own skills, and their own limitations. For a long time, one of the major problems in the field has been the coordination of this vast army of practitioners. In addition to a shortage of resources, it is not uncommon for families to experience discontinuity of services at critical stages in the life of the mentally handicapped person.

Some light was shed on the particular problems of practitioners by our recent national surveys of staff in adult training centres (Whelan & Speake, 1977), in young persons' work preparation courses run by Manpower Services (Speake & Whelan, 1977), and in work centres for the physically handicapped (Schlesinger & Whelan, 1979). In these surveys it was found that practitioners generally do not have adequate access to research literature. Although often showing high levels of dedication and enthusiasm, most staff had received no specific training to work with handicapped people. They were frequently working in isolation, with little opportunity to share their ideas and experiences with colleagues. Few centres had libraries with even basic texts on mental handicap and most staff admitted that they had little time to read even practitioner journals.

In a similar way, we find that research in mental handicap is distributed amongst a wide range of individuals and interests. The relative isolation and separation of researchers may be compounded by the way research is funded and organised, and by the multiplicity of separate departments in universities and other institutes of higher education. Because of the specialised nature of much of the research carried out within particular disciplines, there is often a problem of communication and coordination even amongst researchers themselves. Although sharing a common interest in mental handicap, they may experience difficulties in discussing their work with those not wholly familiar with their subject.

An additional problem is that much research is generated in the pursuit of higher degrees, and by academics whose promotion is conditional upon having an adequate number of publications within properly refereed research journals. This restricts the time available for preparing research reports in a form suitable for practitioner consumption.

In the light of the above, it may seem inevitable that there should have developed a communication gap between those who discover new knowledge and the potential users of the information. Beginning at the point of early training and career choice, researchers and practitioners tend to follow different pathways. The rather higher status accorded to them by society, their greater concern for precision of language and terminology, their rigorous research designs and pursuit of objectivity, frequently underline the accusation that researchers are living in ivory towers and pursuing interests which have little bearing on day to day issues.

The elements of conflict can be seen - the administrator who needs to make decisions now, the field worker who wishes to give a better service to his current clients, the parent who must live day and night with practical problems, cannot afford the patience of the researcher who cannot publish until the work is complete, who presumes nothing without meticulous methodology, and whose work may only affect the lives of future generations. Some researchers feel that objectivity of research would be compromised by personal involvement in advocacy. Their wish to retain independence of pressure groups, or to restrict their comments to data-based issues, may lead to accusations that they do not care, or that their work is irrelevant.

If the above analysis is accurate, it can be seen that the task of applying research to practice in the long term is a complex one. In part, it must involve the modification of existing attitudes and workstyles of both practitioners and researchers. The skills of a 'change agent' are needed - but this is a profession in its own right, a fact which should dissuade us from a superficial analysis.

As a result of our own contact with practitioners over a number of years, we believe that much of the onus is on the researcher, free from the day-to-day responsibilities of providing a service, to help to pull together many of the good ideas encoutered on visits to field settings and to relate these to research findings within an overall framework. We are aware, however, of the short-term effects of many previous attempts by research workers to influence the work of practitioners. A number of papers have been written about these problems (for example: Brown, 1972; Mittler, 1976). In concluding his presidential address to the I.A.S.S.M.D. Congress, Clarke (1977) urged that:

> "...more of us must be involved in seeing that our discoveries are field tested and applied. If we do not, who will? I urge a greater involvement of us all in the corridors of power, and in the sometimes tedious dialogue with governmental agencies."

If we are to respond to Clarke's exhortation, it is not enough merely to ensure that our research findings are disseminated. We must play our part in facilitating their take-up by practitioners both in the short-term and long-term. In view of our limited resources, the shortage of time, and the current wastage of 'know how', *urgent* consideration must be given to the most effective way(s) of achieving this.

The ingredients of a solution

In attempting to improve *communications* between researchers and practitioners, recent years have seen the launching of new practitioner orientated journals, such as 'REAP', and the 'Journal of Practical Approaches to Developmental Handicap'. If such initiatives are to succeed then many individuals may need to acquire new attitudes to the work they do and the ways in which their role may become more professional. In attempting to communicate behaviour modification principles to nurses in mental handicap hospitals, Hall (1974) reported that even when great attention was paid to typeface and layout the nurses preferred not to read about such concepts, but to acquire them as a result of practical demonstration, preferably within their own ward situation.

Other measures to improve communications have included the organisation of joint conferences (e.g. Fryers & Whelan, 1976; the recent joint AGSSOMD/AAMR conference in Sydney) and the formation of new associations which span many disciplines (e.g. the 'Association of Professions for the Mentally Handicapped'). Scott (1979) conducted a survey among practitioners to discover their views about the relative importance of different research topics in respect of their relevance to the problems faced in the field. Such measures have helped to create the climate in which more effective communication and consultation may take place. Some have begun to recognise the essential similarity between research methodology and the principles governing the management and review of service delivery systems.

Direct working links between researchers and practitioners have included many short-term demonstration projects within field settings, and the involvement of researchers as teaching resources in staff training programmes. In some exceptional cases, notably the 'mental retardation centers' (university affiliated facilities) in the U.S.A., it has been possible to bring together research, staff training, and the provision of a service (e.g. vocational rehabilitation) within the same building. The benefit to each of the activities resulting from proximity with the other two suggests that many more such centres should be established.

When reviewing the above strategies for bridging the gap between research and practice, some serious limitations are discovered. In particular, there is a good deal of evidence that many apparently successful collaborative partnerships evaporate without trace once the "circus has left town" (i.e. the researchers departed). Apparently the interest and enthusiasm which staff experience whilst the project is under way cannot be sustained under the pressures of normal daily routines.

There are special difficulties associated with the translation of high-powered 'demonstration projects', often enjoying higher than average resource levels, into the work of more typical agencies. Whilst claiming, possibly with some justification, that the results would not have been achieved within their agency, due to several adverse conditions, staff may well be experiencing some resentment, or even hostility, at the implication that the 'demonstration project' was intended to show them how it should be done.

As a means of bringing about attitudinal and organisational change, staff training programmes have produced disappointing results. Klaber (1971), for example, found little correlation between the grades achieved by nurses undergoing training, both in theoretical and practical subjects, and the pattern of nursing activity exhibited upon return to their ward after training. The latter was largely determined by the prevailing 'zeitgeist' of the institution, too powerful to be modified by the assertions of a newly qualified member of staff, with little status in the organisation.

It now seems reasonable to draw some conclusions from the preceding analysis. There appear to be five basic conditions to be met if future attempts to apply research to practice are to benefit from previous experiences. They are as follows:

1. Research carried out should be relevant to practice. One way of ensuring this is to explore areas wherein practitioners report problems.
2. The research findings should be communicated to practitioners in clear, unambiguous language. There should be joint consideration of the possible applications of the findings.

3. The researchers should demonstrate the applications within the actual (field) setting. The applications should be evaluated in respect of their relevance, acceptability to practitioners, validity and reliability, feasibility, cost effectiveness, and suitability for staff to use even with little training.
4. Practitioners should be given a chance to try out the applications for themselves, under guidance where necessary.
5. The researchers should collaborate with the practitioners concerned, and those with administrative responsibility for the service, in devising ways of ensuring that valuable applications are built into long-term practice. One method of achieving this is to include them in the job descriptions prepared for new members of staff.

A New Strategy

The research strategy adopted by the 'Habilitation Technology Project' has been designed with the previous five conditions in mind and in the light of discussions with colleagues from a variety of disciplines and visits to innovative schemes in many parts of the world. The research strategy is itself currently the subject of evaluation, but it is presented here in the hope that other research and practitioner colleagues may consider adopting it. We hope that they will communicate their experiences to us, and that, together we may continue to evolve a strategy with increasing effectiveness.

Essentially, the strategy involves a partnership between the researcher and practitioner which addresses itself particularly to the problem of ensuring that the outcomes of the collaboration are built into long-term practice. It will be seen that the design of the project involves a combination of the concept of 'action research' with 'lattice theory'. These two theoretical influences will now be briefly described in turn:

'Action research', described by Cunningham (1976), first requires the establishment of an action research group. Drawn from a particular organisation, this group must be trained, where necessary, to articulate the problems facing the organisation concerned. This should lead to the setting of agreed objectives, followed by the production of pilot solutions. These must then be field tested, and modified where necessary, before final approval and adoption takes place.

'Lattice theory' was first applied to the field of mental retardation by Budde and Menolascino (1971). They define a lattice as: "...a network of interrelated and interdependent elements or components which are graphically illustrated by cells, containing verbal description. These cells are ranged sequentially left to right and bottom to top, so that they provide a flow and hierarchical structure leading to the attainment of a major objective".

As can be seen from our 'programme methodology lattice (figure 1), the goal of our action research project is a:

> "Comprehensive set of habilitation packages available, thoroughly evaluated, and in use in the field by practitioners".

We believe that the outcome of the partnership between researcher and practioner must be something more durable than the enthusiasm and ideas which may result. There must be a tangible end product, and we use the general term 'habilitation packages' to represent this. We define the term to include new tools or techniques for staff to use.

Our first task was to set up the 'action research group'. In our case this was to consist of managers of adult training centres (local authority day centres for mentally handicapped adults). Within a 50 mile radius of our research centre, at the University of Manchester, there were over 100 ATCs, situated within eight local authority areas. Following a visit to each of eight key local authorities within these areas, and the appointment of a liaison officer to our project at senior administrative level in each, we met with all the ATC managers of each authority in a series of separate meetings. The managers from each authority selected from among themselves one manager who would represent them at the subsequent meetings of the 'management consultancy group'. Two authorities, on account of their size, were allowed to have two representatives each.

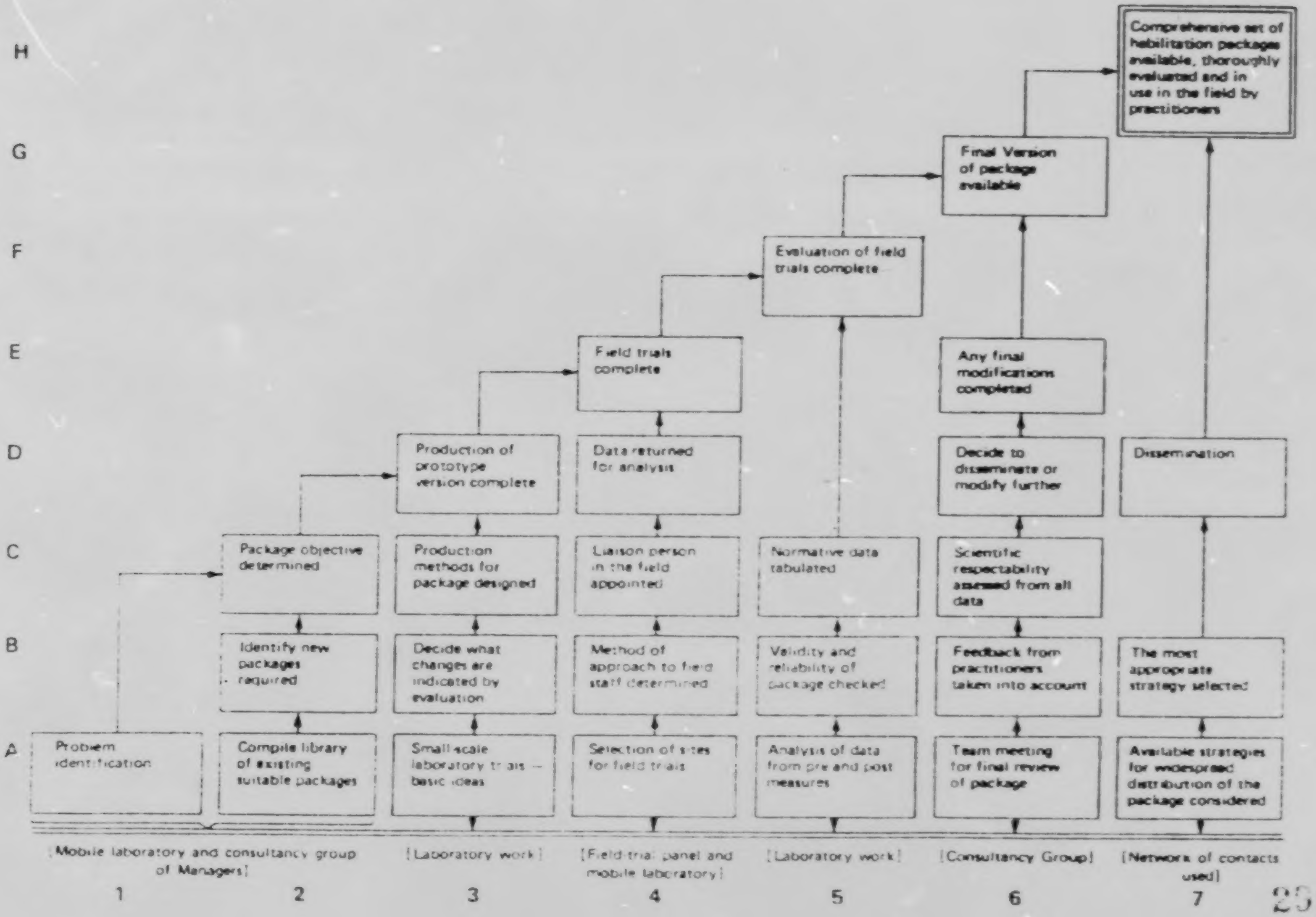
During the early meetings of the management consultancy group, initial identification of common problems (areas of agreed priority in assessment and training) took place. At this time the researchers began a comprehensive (and ongoing) review of the literature in order to compile information about existing solutions (tools and technology already available which may meet the needs identified). This aimed to reduce the likelihood of unnecessary duplication of effort with other workers, whilst enabling real gaps to be discovered and specific objectives for new packages to be determined.

Column 3 in the lattice describes the stages involved in producing prototypes of new packages, where required. These, together with any existing but as yet untried packages, are then sent for evaluation in one or more field settings, in accordance with rigorous procedures agreed with a liaison member of staff within that setting. For the purpose of this field evaluation, 30 ATCs have been carefully selected (from the 100 or so within the 50 mile radius) as representing a typical cross-section of ATCs to be found anywhere in the country. An important constraint in selection was that they should be distinct from those ATCs whose managers serve on the 'management consultancy group' (MCG).

Following field trials (column 4), evaluation data is analysed (column 5) and finally reviewed by the researchers together with the MCG (column 6). If the review is favourable, the package is ready for widespread dissemination to the field (column 7). It is hoped that the process of involvement of fellow practitioners at every stage in the conceptualisation, design, and development of a package will lead to a greater acceptability to staff and a commitment to its use.

It should be pointed out that an additional feature of our project is the attachment, on a full-time basis, of an experienced ATC manager to work alongside the research team. He provides an invaluable link with his colleagues and he enables the researchers to focus on the research issues for a greater proportion of their time as a result of his role in 'servicing' the large collaborative network which has been established. Of particular importance is his contribution to our understanding of the attitudinal and organisational factors which must be tackled within the field if the resulting packages are going to be used on a long-term basis.

FIGURE 1: Programme Methodology Lattice


H
G
F
E
D
C
B
A
Comprehensive set of habilitation packages available, thoroughly evaluated and in use in the field by practitioners
Final Version of package available
Evaluation of field trials complete
Field trials complete
Any final modifications completed
Production of prototype version complete
Data returned for analysis
Decide to disseminate or modify further
Dissemination
Package objective determined
Production methods for package designed
Liaison person in the field appointed
Normative data tabulated
Scientific respectability assessed from all data
Identify new packages required
Decide what changes are indicated by evaluation
Method of approach to field staff determined
Validity and reliability of package checked
Feedback from practitioners taken into account
The most appropriate strategy selected
Problem identification
Compile library of existing suitable packages
Small scale laboratory trials — basic ideas
Selection of sites for field trials
Analysis of data from pre and post measures
Team meeting for final review of package
Available strategies for widespread distribution of the package considered
[Mobile laboratory and consultancy group of Managers]
[Laboratory work]
[Field trial panel and mobile laboratory]
[Laboratory work]
[Consultancy Group]
[Network of contacts used]
1
2
3
4
5
6
7

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THERAPY FOR THE EMOTIONALLY DISTURBED AND THEIR FAMILIES

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Therapy for the Emotionally Disturbed
and Their Families

R.N. Lowe

ABSTRACT: This article sets forth the premises upon which Adlerian family counseling are predicated. After clarifying his position on the implications of the title, the author discusses a key concept in Adlerian theory, that of social interest. The traditional practices of pampering and punishment are cited and their inadequacies for stimulating child cooperation are noted. The use of natural and logical consequences provide a basis for establishing a new tradition for parent-child relationships. The author concludes with a description of the process and content of a typical initial interview.

By Way of a Disclaimer

I must apologize at the outset for the title of my presentation, "Therapy for the Emotionally Disturbed and Their Families". Through no fault of anyone, unless possibly the fault was mine, the content of what I have to say is not reflected in the title. Rather, it is my intention to present, for your

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The author, at the time of the presentation, was a visiting senior lecturer. His usual affiliation is the University of Oregon.

thought and consideration something of the ramifications of Adlerian family counseling which I understand to be considerably different from, if not the antithesis of, what I imagine most would anticipate from the title (Dreikurs, Corsini, Lowe, & Sonstegard, 1959).

To be somewhat clearer, please know that I don't think therapy, psychotherapy, that is, is appropriate to the behavioral problems confronting the vast majority of the families which are within our concern. Further, I don't believe conceptually, as the title implies, that there are two entities: one the so-called disturbed child and the other the child's family. Rather, as Alfred Adler conceived the notion, the problem of one person in the family is the problem of all members of the family, especially that member of the family who believes s/he is, or is regarded as, the least disturbed member.

As Adler discussed it, in instances of a prolonged problem of a relationship within the family, each member is a contributor; each one is no more or less responsible than any other one.

Finally, with respect to the title, for our purposes, I suggest that we might do better to think in terms of the child being disturbing rather than disturbed, and, concomitantly, that parents experience difficulty with such children not because they, the parents, are sick but rather because they are ignorant of how to manage themselves in these disturbing relationships. And it is precisely because most parents are ignorant rather than sick that counseling rather than psychotherapy is warranted. Rudolf Dreikurs first called to my attention a meaningful distinction between the two (Sweeney, 1975).

While counseling is, essentially, a process of providing information from which parents learn how to manage themselves in conflict situations, psychotherapy is for those few people who cannot benefit sufficiently from counseling that appropriate changes in thinking, hence behavior, are realized. In these few instances, a thorough examination of the life style is required, hence psychotherapy. Adlerian psychotherapy postulates that when fundamental changes in behavior of adults is essential, they will come about only when the individual changes his/her values (Dreikurs, 1956). Such changes involve the taking of risks intended to challenge the certainty of the perceptions and values held. The process of Adlerian psychotherapy, as is usually claimed for most recognized psychotherapies, is complex, requiring skills that take considerable time, effort, and development to master (Dreikurs, 1952-53).

In short, then, it is because of these reasons, briefly cited, that I would not knowingly select the title, Therapy for the Emotionally Disturbed and Their Families.

The Reality of Preference

To the point of Adlerian family counseling, let me say at the outset that of all the differences and similarities frequently attributed to humans, there is one similarity which appears to be universal: the existence of preferences. It is my intention tonight to provide you with a preview of my preferences as they relate to a point of view about humans behaving. The viewpoint is based on a philosophy of democracy with its implied principle of human equality, and on the socio-teleological approach of the psychology of Alfred Adler (H. & R. Ansbacker, 1956).

In this frame of reference, humans are recognized as social equals, their actions as purposive and directed toward a goal, their personalities as individually unique. We are teleo-analytically oriented, concerned with the goals of the child's misbehavior and the means of changing these goals in socially desirable directions.

Parent Education

As one reads the many articles and books published today for parents, one is impressed with the maze and mess of information currently available. The points of view range from "spare the rod and spoil the child" to "the child can do no wrong". While few of these publications seem to have been helpful, I believe that parent education is a "must" if we are to realize the full potential of parenthood and the family (Lowe & Morse, 1977).

Parents in this generation find themselves in predicaments unheard of in earlier times. Tasks of raising children today are more difficult than ever before. Methods which, for generations, were effective no longer stand parents in good stead. Few parents, authorities for that matter, seem to make any meaningful association between the profound social, technological, and economic changes which we are experiencing and the accompanying changes that are taking place in human relationships. I have particular reference to the social changes wherein we are moving from autocratic forms of relationships involving superiors and inferiors, to democratic forms of social equals. The controlling methods parents learned from generation to generation were those of reward and punishment, bribe and threat, methods which were adequate in keeping the so-called inferior person in line with the demands of his/her superiors. In relationships which are now emerging, that of social equals, these methods have become obsolete.

Many parents try to maintain a position of authority but the surrounding atmosphere in our society no longer permits them unlimited powers over their children. Other parents let the children express themselves as free individuals and consequently tend to indulge and pamper them. Still other parents, believing in democracy, would like to use the principles in their family life but do not know how to apply them. In these three commonly pursued approaches parents become confused and more so as they, themselves, become frightened and apprehensive in a world of change and turmoil. In short, parents find the old ways no longer are effective, that indulgence further complicates the problems, and they have neither understanding nor skills for the new relationship of social equals. Because parents are without a tradition for this new era, it becomes essential to fill the gap through parent education.

Origins of the Point of View

To comprehend the process and purpose of Adlerian family counseling it is essential that the philosophy upon which the purpose and process were developed be discussed. In the time at hand, I can offer but the briefest outline of this particular psychological orientation and its application to family counseling.

As I noted at the outset, the point of view is based upon the concepts of Alfred Adler, noted psychiatrist and psychologist,who developed his ideas in the child guidance centers which he founded and directed in Vienna about sixty years ago (Ansbacher, H. & R., 1956, 1964, 1978).

Rudolf Dreikurs, outstanding authority on Adlerian psychology, introduced Adler's ideas in America through his community Child Guidance Centers about forty years ago (Marley, 1959). In Eugene and Portland, Oregon, I founded, utilizing the model identically, in 1958, the Community Parent-Teacher Education Centers (Lowe, 1959, Lowe & Morse, 1978). Several Australians have been trained in these centers during the ensuing twenty-one years.

Fundamentally, Adler believed that every human is born with the potential for developing social interest (Ansbacher, H. & R., 1964). Social interest implies the feeling of belonging; the ability to cooperate, participate, and contribute, to recognize the fundamental equality of all humans, everywhere, and to work toward the solution of personal problems in accordance with the common welfare. This human quality, social interest, is not inborn in the sense that it is an instinct, but rather in the sense that it is an innate potentiality or capacity which can be developed.

Factors Stimulating Social Interest

Whatever increases a child's feeling of belonging, or gives rise to achieving social equality contributes to one's feelings of significance, hence, increases his/her social interest. Conversely, whatever contributes to a child's feeling of inferiority, inadequacy, humiliation, being slighted, decreases his/her social interest. The constructive approach for stimulating the child's social interest is the maintenance of order without conflict within the family. This is of fundamental importance. In learning to accept order willingly, the child learns to cooperate with others and the benefits of this cooperation. To this end, it is essential that the atmosphere within the family be one of kindness, mutual respect, and tolerance for mistakes and failures. However, firmness, the maintenance of order, and regularity are equally essential. Following the assumption of these responsibilities, parents and other adults in the home set the example for their being discharged.

Reward and punishment as methods of education should be avoided. This is a fundamental error in both our homes and schools (Dreikurs & Stoltz, 1964). While they may secure temporary conformity, they do not stimulate the desire to cooperate and hence hinder the development of social interest. Training should be rather in terms of natural or logical consequences in which the failure to observe order is followed by some naturally or logically imposed consequence, not some arbitrarily imposed event.

With the present concern in New South Wales for the increase in behavior problems within the schools, it might be appropriate to give serious consideration to the concepts of natural and logical consequences as viable alternatives to the present practices of reward and punishment. Recently I appeared before a ministerial enquiry concerned with pupil behavior and discipline and presented some ideas along these lines.*

The establishment of an atmosphere of peace and order is necessary for children to learn that it is important and possible for individuals to live together harmoniously. Conflicts with the child hamper the development of the sense of belonging and should be settled peaceably without fighting or yielding. Generally, these conflicts may be avoided if the family attitude is to win the child to the observance of order rather than to force him/her to obey.

Most important, for the child to feel he/she has a valued place in the family, is the recognition of the significance of his/her contribution as a member of the family. However, here we must be cautioned not to mislead the child into thinking that in the recognition of his/her contributions, s/he is granted special rights or exemptions from further responsibility. The process of recognition of significance is not a reward for proper performance. The impressions frequently held by many children is that because they are children they are entitled to special rights and have no responsibilities. These notions are rampant today. Special praise for cooperation to one child fosters competition and diminishes social interest on the part of many children. Optimism and encouragement are essential. Through the avoidance of criticism and pessimistic predictions the family can encourage the child to be able to fulfill his/her obligations.

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*It is worthy of note that a group of some twenty students completing their secondary teaching certificate, in its submission to the committee, recommended corporal punishment as the solution to classroom behavior problems.

Punishment and Pampering

Punishment and/or loss of affection tend to shake the child's faith in the parent and therefore threaten the child's emotional stability. Either may provoke his/her hostility, which often leads to socially unacceptable behavior. The child may express antagonism openly and actively or in a more passive but just as effective way. In either case s/he is showing his/her rebellion against what s/he conceives as being unloved or unaccepted. Actually, the parent may love the child deeply but does not know how to express it.

Often parents who love their children express their love by pampering them. Pampering has as serious an effect on a child as punishment and rejection (Ansbacher, H. & R., 1956, 239-242; Adler, 1969; Rattner, 1971). The parent, in giving the child everything s/he desires, robs him/her of his/her self-reliance, ability, and willingness to face unpleasant situations and to participate unreservedly. A pampered child is deprived of the necessary experience of his/her own psychological strength. Usually, the pampering is due to a desire to spare the child unpleasant aspects of living and growing up. Sometimes, pampering is used to express the parents' own importance, or it may be used as a means, futile though it may be, to gain the child's cooperation. The played out scenario for the pampered child is that s/he continues through life feeling not understood when there is no pamperer. As they get older, revenge becomes a primary goal. Pampered individuals, because others are unwilling to continue pampering, believe they are purposely being hurt, hence retaliate. They seek to disturb the lives of others, especially those with whom they have close ties; their parents, their spouses, their lovers, their friends (Adler, 1969).

More serious than punishment or pampering is attempting to utilize them both. Such inconsistent behavior undermines the child's feelings of certainty about the clues and cues in the environment hence undermines the feelings of certainty about him/herself. If certain acts are punished at one time and overlooked or even approved at others, the child either succumbs to confusion or, in an attempt to protect him/herself, ignores his/her parents.

Natural and Logical Consequences

Parents are likely to wonder how a child becomes socially adjusted if s/he is never punished. The use of natural and logical consequences will further the process as they permit parents to guide children without anger or force (Dreikurs & Grey, 1968). In using these methods we are suggesting that consequences of behavior determine whether or not the behavior is desirable. If the consequences result in contributions to the lives of others, we can be pretty sure that the behavior is positive. If, on the other hand, someone, or the group, is harmed in some way, the liklihood is rather certain that the behavior is inappropriate.

As an example, we might cite one of the common mistakes made by parents regarding family members arriving late for evening tea. The ritual involves an enquiry along the lines of, "Where have you been?", and before the child responds, s/he is scolded, promises never to be late again, and finally, the child is fed his/her tea. The logical consequence for a child being late for tea is that s/he gets no tea. This may seem quite unkind or even punitive at first examination, but such is not the intent. Certainly scolding and lecturing are not effective. We know this because the child invariable repeats the act. While the application of natural and logical consequences alone will not solve all problems, when properly utilized parents will find their conflicts are minimized if not eliminated.

The understanding and skill essential to allowing natural or logical consequences to function requires time to learn and parents, seeking quick solutions oftentimes are impatient because of their lack of skills, and resort to, "I tried that idea and it didn't work." A problem which has plagued teacher education and now plagues parent education is the notion that ideas, being good or bad, do or do not work. When counseling discouraged parents or teachers, I find it extremely difficult to convince them that it is people who do or do not work, not ideas.

Concern for Social Status

Desire for social status and significance grows out of the natural or human desire of the child to experience feelings of belonging. As a child questions his/her own value and gets the impression of being at a great disadvantage, either to his/her parents or siblings, s/he becomes overconcerned with his/her significance and ability to achieve acceptance by others. The effects of such concern frequently are to be seen in the attempt to overcome feelings of insignificance by striving for superiority, power, and control over others. This is reflected in the child's exaggerated desire to draw attention to him/herself. Each child adopts his/her own particular kind of striving. These are his/her character traits: expressions of how the individual relates him/herself and participates in human society.

Character traits growing out of overconcern for social status may be useful or detrimental to social participation. However, even when useful methods are employed for the purpose of gaining social status, they permit only limited participation. Such participation is not based on a feeling of belonging and group interest, but rather on a desire for personal superiority. As soon as such superiority is not obtainable, the desire for participation vanishes and veiled antisocial attitudes become apparent. Over-concern for social status usually leads to compensatory behavior patterns along lines that are not socially useful. Their degree and kind depend upon the discouragement of the child to the extent his/her feelings of belonging are curtailed.

Compensatory Behavior

These behavior patterns or character traits may be identified as aggressive or non-aggressuve. In the category of aggressive behavior can be found vanity, jealousy, envy, greed, and hate. Non-aggressive behavior takes the form of compensatory protection, usually including seclusiveness, anxiety, timidity, submissiveness, hypersensitivity, overcheerfulness, and martyrdom.

All these approaches, either constructive or distructive, may be used by a child to gain real or fictititious superiority out of the concern for social status and fear of insignificance. Dreikurs suggests that instead of the desire to participate unreservedly, the child establishes one or more substitute goals in his/her relationships with others. He referred to them as the four goals of disturbing behavior (Dreikurs, 1968). Dreikurs notes that the child, not believing s/he has a constructive place in the group--family, class, neighborhood, or wherever--, either strives for the goal of attracting attention, or to prove his power or superiority over others, or to punish and secure revenge for his/her humiliations and sufferings, or, s/he may seek to avoid participation and responsibility through assuming or displaying a disability.

Because the child establishes his/her attitudes toward others and toward living, according to Adler and Dreikurs, by the age of four or five (in my judgement I believe it is closer to two or three) parents, teachers, and counselors might well realize that by the time the child reaches school age it is not likely that the school program is going to make marked inroads in the child's basic personality.

Encouragement

A most important technique which we urge parents to develop is the art of utilizing encouragement. While the term is widely used, the activity is lightly pursued, inasmuch as parents seem to be without awareness of its complex nature. From our point of view, no corrective effort is possible short of encouragement with its implied restoration of the child's confidence in him/herself. Misbehavior indicates discouragement. It is so much easier and more gratifying to cooperate that every child would do it had s/he not lost confidence in his/her ability and in the possibility of success. Parents' methods of training children constitute a sequence of discouraging experiences whether through imposition, humiliation, indulgence, overpermissiveness, or neglect. Consequently, a child requires encouragement as a plant requires water. The tragedy is that few seem to know what encouragement is or how it should be used.

Encouragement is not synonymous with praise (Dinkmeyer & McKay, 1976). Actually praise can often result in additional discouragement because the child may consider it either as undeserved or as an obligation to succeed beyond his/her capacity. The art of encouragement presupposes a genuine faith in the child as s/he is, not in his/her potential or what s/he could be. At present few adults have faith in children, least of all in those who need it most. Only those who do not need it seem to get it. Those whose future lies, in critical measure, in receiving encouragement, encounter only confirmation of their failures (Dinkmeyer & Dreikurs, 1963).

To a large extent our educational practices in our homes and in our schools are mistake centered. A considerable amount of our efforts are devoted to preventing or correcting mistakes children make. For the most part, these well-meant procedures lead only to further discouragement accompanied by increased misbehavior. Failure and mistakes threaten social status and recognition.

These are but a few of the principles upon which Adlerian family counseling is based. They have emerged as a new approach in relating to children. Because they are not widely accepted they do not constitute a tradition. No set of rules guarantees success or precludes conflicts but it can provide a yard stick by which procedures can be evaluated and an orientation which reduces conflict and inconsistencies.

The Community Parent-Teacher Education Center

In Eugene, Oregon we established our first community parent-teacher education center in 1958 (Lowe, 1959; Turner & Pew, 1978; Lowe & Morse, 1977). It is a venture in parent-child-teacher counseling and education conducted in an open or public setting. More recently, three years ago, we extablished our second venture in parent-youth-teacher counseling and education. These remarks concern only counseling for parents and teachers of children of primary and pre-school levels. The scope and function of the center are modeled along the lines of those developed by Adler in Vienna some sixty years ago. This model, which Dreikurs called child guidance centers, was introduced to the United States by him in 1939 (Marley, 1959). Much appears in the literature, on film, audio and video tape. Recently we assisted the Newcastle College of Advanced Education in establishing a community parent-teacher education center, the first in Australia, under the leadership of Peter O'Connor and John McIvor.

The purpose of these centers is to facilitate parents, teachers, and children learning to work cooperatively and effectively in the many activities which bring them together. The assumptions underlying the open or public center format include (Lowe, 1974, 2-4):

1. Teachers and other professionals engaged in a helping relationship may observe the dynamics of human interaction and thereby gain meaningful experiences as they relate to developing a better understanding of children's behavior as well as their own.
2. Many parents seeking to improve their relationships with their children can profit from information intended to preclude the need for therapy later.
3. Open centers make possible many parents and teachers profiting from the concerns of a few.

4. Reaching large numbers of parents at the child's early stage of maladjustment may preclude later and greater expense, both in terms of financial assets and human suffering.

5. The child who presents him/herself in a classroom situation with problems of disturbing behavior is less likely to be cooperative in teaching-learning activities.

Any family experiencing difficulty in interpersonal relationships which has as its primary focal point one or more preschool or elementary school children is eligible for counseling. A primary requisite for counseling is that it is undertaken voluntarily. Specific conditions include parents seeking help attending at least two 2-hour sessions as observers; seeking a private interview with the intake interviewer as an initial step in establishing readiness for counseling; parents granting permission to confer with the family physician, the school, or other community agencies concerned with the activities of the child(ren); enrolling the child(ren) in the center playroom; attending counseling sessions for other parents; and, finally, participating in a parent education study group. No fees are charged for any of the services.

An Orientation to the Counseling Sessions

With few exceptions parents come for counseling to learn how they can make their children do something the children refuse to do or to make their children stop doing something the children persist in doing (Lowe, 1974, 29-38). In their exasperation or discouragement they often say, "I've tried everything!" What they don't relaize is that the guidance of children must include changes in the parents' behavior. For all practical purposes, we cannct expect a child to change his/her behavior until at least one of the parents changes their's.

This is fundamental to our point of view.

The counselor's basic premise in his/her approach can be stated tersely. Although the parents' concern is resolution of some immediate conflict, the ultimate expectation on the part of the counselor is that, in the long run, the parents will acquire a more adequate approach to dealing with children. Briefly, then, the counselor seeks to help parents acquire new ideas and new methods for solving conflicts and establishing better relationships. The premise precludes the popular notion that before a parent can improve his/her relationship s/he must first understand his/her own motivation.

The initial interview:

The parents' first interview with the counselor is often of crucial significance. They come in desperation; they have problems which are extremely serious for them. As in all counseling interviews, the art of listening is of utmost importance. But what are we listening for? Initially, we listen for the subjective situation, that is, how the parents view the situation and all who participate in it. We do this first by soliciting the family constellation, that is, the birth order, followed by how each relates to the others. This is accomplished in listening to the parents description of each child. The presence of the father is highly desirable. In listening to and observing the interactions of the parents, one can easily recognize who is the dominant one, who is over-eager, who is over-ambitious, who is the disciplinarian, who is unsure, who is concerned with prestige, who is overprotective, and who is most demanding.

It is the usual practice, after encouraging the parents to state their overall concerns, to obtain further general information. "What do you think is the reason for this behavior?" "How have you handled the problem in the past?" "What success have you had?" are typical questions. The purpose here is to acquire a sense of the extent of the parents' discouragement, how they view the children, the corrective methods they use, and a feeling for the family atmosphere. After the parents have described their concerns for a while, perhaps ten or fifteen minutes, we ask the mother, or whichever one has the major responsibilities for the children's time, to describe a typical day. For example, "How do the children get up in the morning?" "Any problems about dressing?" "The bathroom?" "Breakfast?" "How about getting off to school in the morning?" "What do you know about school behavior?" "How about playing with other children?" "Any difficulties with evening tea?" "Any problems with television?" "Getting to bed at night?" "Brushing of teeth?" "Taking of baths?" "Getting up after going to bed?" "Sleeping through the night?"

During the interview about family routine, where problems arise, the question is asked, "And what do you do about it?" This is most important because it is in the interaction between the parent and the child or children that the child's goals are recognized.

The counselor may feel the parent is falling for the tricks of the child who is seeking recognition and who is demanding too much attention; or s/he may tentatively decide that the child is attempting to gain power; that the parent is a slave of the child; or that the parents expectations are demoralizing. The recommendations which come at the end of the interview session are based upon the "diagnosis" of the goals, and here the counselor can be wrong despite all precautions.

The foregoing usually consumes forty or fifty minutes.

During this period, the children may be in a playroom with other children, or may, at their election, be viewing the interview on closed circuit television. In either event, an observer is assigned to record significant behaviors on the part of the child which will be reported later on to the group assembled.

At this point, we send for the children and ask the parents to leave, but before they go we ask them to predict the behavior of the children. It is highly significant that in the majority of instances, the parents predictions are just the opposite of how the children behave. We give the parents the same option as that given to the children; they can either go to the playroom or observe the interview on television. We have never, in twenty-three years, had a parent go to the playroom.

While awaiting the arrival of the children, the counselor usually will say something to the group of a predictive nature about each child's behavior, or, at the very least, to alert the group to various kinds of behavior that the child(ren) may demonstrate. Some children come forward, shake hands, smile, and talk freely about their parents and life in general. Others are sullen and refuse to participate. Some children demonstrate unusual behavior, some will run in and around the room; others walk in politely but refuse to sit down. Still others will sit down, but with their backs to the group or they may refuse to respond to enquiries except with gestures, frowns, or smiles. All behaviors are grist to the counselor's mill. S/he considers all behaviors as they relate to the problems presented.

The counselor seeks to put the children at ease by asking general questions which indicate interest in the child and the problems as s/he sees them. The preliminaries are short, for children appear to prefer a direct approach.
After introducing him/herself, the counselor might ask, "What is your name?"

"May I shake your hand?" "Do you know why we're here?" "How are things going at home?"

The interview with children is essential for several reasons, most important of which is to confirm or reformulate the tentative goal diagnosis. Contrary to the impression often created, the interview is not for purposes of counseling. There are aspects of counseling in the interview but these are "secondary gains". Counseling is for adults, the parents and teachers. As noted earlier, children are not likely to change unless at least one parent changes.

The interview is short, usually lasting for ten minutes. As far as the children are concerned, there may be no problems. Usually they are verbal optimists. However, the counselor is interested in the children's concept of themselves. Questions leading to the crucial one involving the goals might be: "Are you a big girl or a little girl?" "What do you do that pleases Mum or Dad?" "What do you do that upsets them?" "Why do you think you do that?"

The child usually has no idea why s/he behaves in a certain way. When s/he answers "I don't know!", that response is generally accurate. Children generally follow impulses without clear realizations of their motives. Any explanation on the part of the child usually is an excuse or rationalization.

We ask the question, "Why do you think you do that?', in preparation for revealing the child's goal to him/her. We are now ready to proceed: "May I tell you what I think?" "Could it be that--you like to keep mum busy; or, you want to show mum that you can do what you please and no one can stop you; or, you feel you have no chance and want people to leave you alone?", are all intended to discover the goal and at the same time reveal it to the child.

If the counselor is correct, the inquiry evokes an immediate and characteristic reaction. It is almost automatic. Dreikurs called this the recognition reflex (Dreikurs, 1968, 34). It indicates the correctness of the interpretation. It consists of a "roguish smile" and peculiar "twinkle of the eyes". The child need not say anything, or s/he might even exclaim, "No!", but his/her facial expression gives the child away. If the interpretation is wrong, there is no reaction. Then the counselor pursues another conjecture. The interview is closed with an inquiry as to whether or not any of the children wish to offer any additional information or ask any questions (Dreikurs, et al., 1971).

Pertinent reports:

After the children have been interviewed, the parents return. We continue the session with exploring any new insights the parents may have gained through watching the children's interview. This is followed by a playroom worker's report of observations about the children's relationships and activities in the playroom. Also at this time, we receive reports from others who have a responsible relationship with the child in question. This usually includes the teacher, school counselor, sometimes the principal, juvenile court workers and the like. We now have a pretty fair picture of how people in the child's world view the child and how the child views his/her world.

Now comes the time when the parents are given explanations of the dynamics of the child's behavior. This is followed by specific recommendations as to what the parents can do. We refer to this as homework. Initially, we find it best to limit the number of recommendations to one or two. The impact of too many new ideas and suggestions for dealing with children may be overwhelming and thus confuse rather than help the parents. The parents are urged to take their mistakes in stride and to not worry if everything doesn't work out as simply as it appears in the counseling session. We spend considerable time encouraging parents to have the courage to be imperfect.

The recommendations at first tend to be negative; "don't do" types and then later positive; "do do" types. It is important to recognize that before a person can be constructive s/he must stop being destructive. Among the most common suggestions are, "stop nagging", "stop preaching", "stop promising", "stop threatening", "stop bribing", "stop complaining", and so on. These "don't" should be accompanied with concrete examples drawn out of the parents' experiences. They should be so detailed that the parents can readily grasp what they should not do. Care must be taken not to create the impression that the counselor is being critical.

Each recommendation has implications for the total relationship and, if carried out is bound to result in fundamental changes. The parent is warned that the situation may, for a short time, become worse. The child is attempting to maintain his/her place in the group and may reject the idea of change and will double his/her efforts to keep the change from taking place. The parent having been forwarned is more likely to role with the child's efforts rather than become further discouraged.

The follow-up interview:

In the follow-up interview the parents are asked to review what they learned last time, what has happened since the last session, and what they think about what happened since the last time. The counselor, of course, will have a record of the recommendations and will review that in detail. While the parents generally follow the recommendations and report some progress, it is not ususual for one to state the experience was difficult, that the child took advantage of the new situation, s/he was resistant and so on. In each instance, the counselor asks the parents, "And what did you do about it?"

Gradually, the parents become encouraged that they can do something about the situation. The information gained in the parent study group, the techniques learned in the counseling sessions, and the support received from the many other parents who are working on similar problems, becomes a source of stimulation for the parents.

After the initial exploration of what happened and a discussion of what it all means, the subsequent interview moves along the same lines as the initial interview: the children are interviewed, reports are received, the dynamics are explained, and recommendations are made. For the few instances where parents appear unable to profit from the sessions, role playing, psychodrama, and possibly psychotherapy are warranted. But please note, the emphasis is on teaching parents and teachers how to handle themselves in conflict.

Many of the principles suggested to parents and teachers apply to all relationships, not only those of adults and children. Parents who learn to become effective in their relationships with their children often report improved relationships with each other. Some go so far as to note that their relationships with their parents have improved.

It probably goes without saying, but I wish to say it anyway.

Even the best methods in the hands of a highly skilled clinician do not give assurances of the elimination of all conflict. But parents and teachers who are acquainted with these principles and know what to do, and why, are in a better position to deal with a given situation effectively and in the best interests of the child.

There is considerably more I would like to present about the family counseling centers; our grandparent study groups, teacher study groups, marital study groups, role playing, the lending library, staffing, and so on, but I think you have some idea what we are about. Let me close in thanking you for your interest and attention.

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ORGANIZING SERVICES
FOR THE DEVELOPMENTALLY DISABLED

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NEW ENGLAND EDUCATIONAL DIAGNOSTIC CENTRE

ORGANIZING SERVICES FOR THE DEVELOPMENTALLY DISABLED

A.J. Shaddock

Developmentally disabled people have traditionally been devalued and have been left behind in the competition for services. The term "developmental disability" is relatively new, and is not in widespread use in Australia at this time. Riggar (1979) cites an authorative U.S definition.

> The term "developmental disability" means a severe, chronic disability of a person which:
>
> (a) is attributable to a mental or physical impairment or combination of mental and physical impairments;
>
> (b) is manifested before the person attains age 22;
>
> (c) is likely to continue indefinitely;
>
> (d) results in substantial functional limitations in three or more of the following areas of major life activity: self care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living, economic self-sufficiency; and
>
> (e) reflects the person's need for a combination and sequence of special, interdisciplinary, or generic care, treatment, or other services which are of lifelong or extended duration and are individually planned and coordinated.

Like other people who have been denied human rights and civil liberties the developmentally disabled are now claiming a "fair go" from their society and government.

My assumptions and biases in approaching this topic will be evident throughout this paper but I can state five of these at the outset: first, my perspective is that of a clinician, who upon graduation expected that services would be in place and that my professional life would be sane, purposeful, orderly and satisfying. After 10 years on the payroll and the inevitable rise to middle management, the 'rose-coloured' glasses have been shattered. I now understand why the Canadian Commission on Emotional and Learning Disorders in Children could conclude that organizational barriers are the major deterrent to effective mobilization of resources (Roeher, 1976).

Second, problems associated with developmental disability are not only educational and demand broad, multi-disciplinary attention.

Third, while philosophies of normalisation and integration are ideals which provide general direction, they are certainly not receipes to be slavishly followed. For example, the most seriously handicapped or disturbed children may require a separate educational program if they are to receive the intensive services they obviously need. In medical and social welfare services also, services that can respond sensitively to the needs of the developmentally disabled should continue to exist. To the extent that this sensitivity is more likely to be found in a separate or special service, then I argue for separate facilities. However, two-way communication between generic and special services should be strengthened, with the bias always in favour of "the least restrictive alternative" placement.

Fourth, the criteria for admission to special services and facilities should be made more stringent. Perhaps of more importance is the need for the exclusion and discharge processes to be examined so that people do not get permanently enmeshed in the special networks. It seems to me that an appropriate role for a "specialized" department like the Handicapped Persons Bureau in N.S.W., should be one of advocacy. Rather than a focus on monitoring and licencing, this agency could work with politicians, government agencies and private groups to ensure that our general legislation, policy and practice respond to the needs of the developmentally disabled. This style would stress integration rather than separateness of services for developmentally disabled persons.

WHAT SERVICES ARE REQUIRED

We basically know what is needed to improve the lot of the developmentally disabled. The needs are screaming at us. In the educational field we can learn from P.L. 94-142 in United States, and the Warnock Report in Great Britain. Both countries have beaten

Australia off the mark in legislating for appropriate educational services for developmentally disabled persons. In Australia we are acutely aware of what is required. For example, the submission on Special Education initiatives by the N.S.W. Council for the Mentally Handicapped (1979) contains sophisticated recommendations on a number of points including the following:

- legislation
- records
- early education
- post-school education
- administrative structures
- teacher training and recruitment
- identification of needs
- integration
- staffing ratios
- review procedures
- therapy and nursing services

Their recommendations are comprehensive and relate to multiply handicapped children, visually impaired children, children in residential care and to behaviourally disturbed children.

In 1976 at the Early Childhood Special Education Conference consumers gave us their views. Their concerns were summarized by Bochner and Macbeth under the following headings;

- education
- other services
- information
- community attitudes
- political action

In 1977, in a submission to The Health Commission, I outlined the range of services which should be provided for developmentally disabled citizens. (It should be noted that although the list below has a "Health" bias, not all of these proposed services should be seen as the primary responsibility of the Health Commission).

SERVICES FOR THE DEVELOPMENTALLY DISABLED

1. General supportive services
   - (a) Casefinding
   - (b) Information and referral
   - (c) Co-ordination of services (interdepartmental, inter-agency, inter-disciplinary).
   - (d) Follow-up
   - (e) Protective services
   - (f) Personal advocacy
   - (g) Guardianship services
2. Identification and assessment
   - (a) Screening
   - (b) Diagnosis
   - (c) Evaluation
3. Treatment
   - (a) Medical services
   - (b) Dental services
   - (c) Speech therapy
   - (d) Physio-therapy
   - (e) Occupational therapy
   - (f) Psychotherapy
   - (g) Behavioural management
4. Educational services
   - (a) Early intervention and preschool services
   - (b) Educational services, particularly for the profoundly and multiply handicapped
   - (c) Adult educational services
   - (d) Consultation to universities and colleges of advanced education re personnel preparation
5. Family support services
   - (a) Family education
   - (b) In-home sitter services
   - (c) Out-of-home sitter services

(d) Out-of-home respite care
(e) Assistance with transport (to clinics, evaluations, etc.)
(f) General counselling
(g) Crisis intervention
(h) Family planning
(i) Genetic Counselling

6. Living arrangements
   (a) Board and room living
   (b) Group home care and hostels
   (c) Foster care
   (d) Institutional care

7. Vocational services
   (a) Evaluation
   (b) Training
   (c) Placement/counselling
   (d) Sheltered employment
   (e) Activity centres and workshops
8. Recreational services
   (a) Therapeutic recreation
   (b) Leisure recreation

9. Indirect services
   (a) Planning
   (b) Public education and resource centres
   (c) Primary prevention
   (d) Research and evaluation
   (e) Manpower development
   (f) Data management
   (g) Alternative funding
   (h) Elimination of architectural barriers

(Shaddock, 1977; adapted from Paul, Stedman & Neufeld 1977)

It is patently obvious that we can easily answer the question "What services to the mentally developmentally disabled need"? A far more difficult question is "How do we develop them"?

ESTABLISHING AND IMPROVING SERVICES FOR THE DEVELOPMENTALLY DISABLED

Some advocates of the developmentally disabled assume that because their cause is a noble and deserving one, their aims will naturally be achieved in the long run. This type of thinking springs from naivety or from a denial of several realities.

One reality which is hard for service providers to live with is the fact that no matter how strenuous their efforts and extensive their funding, their programs could always have been more successful. Weiss (1973) has pointed out "most programs dealing with social problems rarely accomplish their goals". The need of direct service personnel to "do even more" must be a particular headache for politicians and government departments. While not doubting the motives of government ministers, it is probably fair comment that one of their aims in improving services or funding projects is to temporarily silence vocal and influential groups. However, from the politician's perspective, barely has a new program been funded than the mouths begin to close again on the public teat. One solution would be for an insistence on clear objectives for programs, on accountability and on rigorous evaluation of program efficacy.

There is also the reality of the political process. The ruling political party has the following time perspective:

(a) 12 months recovery from an election campaign; consolidation and "paying off".

(b) 12 months policy implementation.

(c) 12 months preparation for the next elections.

In the absence of a Developmental Disabilities Institute or independent policy-making board, it is apparent that at points (a) and (c) the Government is more likely to compromise and act out of political expediency. Whether good or bad, this situation is the reality we deal with.

There are bureaucratic realities also. For me, the following are truisms.

(a) "Bureaucracy, such as educational systems will move institutionally, only under threat or duress, otherwise they will take the path of administrative ease". (Gallagher, 1975).

(b) It is thought much simpler and less perilous to make no decision or to decide negatively than to decide positively. (Blatt, 1970).

(c) The system makes it more satisfying to decide negatively then to decide positively. (Blatt, 1970).

(d) The process of working with laws, regulations and policies encourages their utilization to prohibit activities and developments rather than to promulgate such activities and developments. (Blatt, 1970).

(e) Bureaucracies follow the principle of "not changing in a radical way what was done in the previous year".

(f) Bureaucracies are also particularly hard on "thin edge of the wedge" proposals, however small, because these could lead to innovative and costly services for which there is no immediate budget allowance.

I am not here proposing a we/they or "goodies/baddies" dichotomy. Politicians and bureaucrats are responding to a different set of pressures and playing to different rules. If we understand their perspectives we have a greater chance of working with them and achieving our mutual purposes.

Those people who find it intolerable to work with bureaucracies and continually rail against them should re-read one of Aesop's Fables 'The Serpent and the File' - it goes something like this:

> A serpent in the course of its wanderings came into an armourer's shop. As he glided over the floor, he felt his skin pricked by a file lying there. In a rage, he turned round upon it and tried to dart his fangs into it; but he could do no harm to the heavy iron and had soon to give over his wrath. The moral: "It is useless attacking the insensible." (Eliot, 1937)

THE LAW

Having witnessed at first hand the rapid implementation of U.S. P.L. 94-142, the "Education of All the Handicapped Act", I appreciate the power of legislation. Solid and systematic progress is possible when the legislature provides the basis for services. By tying fiscal sanctions to the various regulations of P.L. 94-142, the U.S. Federal Government adopted a powerful Federal strategy which usually manages to convince "hearts and minds to follow".

However, progressive legislation is not the total answer. Some critics of P.L. 94-142 believe it to be a two-edged sword. For example it is argued that some educational administrators and practitioners in the U.S. are following the letter but not the spirit of the law. Second, the pace of mandated educational change has been very fast and some pupils' education has suffered. Third there may not be the money to provide the sophisticated services contained in the legislation. Fourth the separateness of developmentally disabled children from the rest of the school population may be reinforced. (Shaddock, 1978)

My feeling is that progressive legislation is probably indispensible if fine philosophies are ever going to be implemented. However, Government bureaucracies certainly have a way of butchering a body of prime legislation as they "prepare" it for our daily fare.

STRATEGIES FOR CHANGE

Advocacy on behalf of the developmentally disabled can surface in many ways. Outlined below are some suggestions for several groups including -

(a) Clinicians and workers in the human services;
(b) Consumers;
(c) Researchers and evaluators; and
(d) Personnel preparers

Clinicians and workers in the human services

I refer here to administrators as well as those involved in face-to-face contact with clients. Far too often we can be accused of being unbusiness-like in our approach to work. If we were in private enterprise and adopted similar tactics, we would not only lack credibility but be bankrupt as well.

In program planning I have found the Program Planning and Evaluation Model of Gallagher, Surles and Hayes (1973) of some use. Gallagher et al. offer a planning model for the specification of problems and an evaluation strategy for the collection of information for decision making. The elements of each problem and their relation to each other are determined and solutions or alternative strategies are compared. The model is presented in Figure 1. Some definitions:

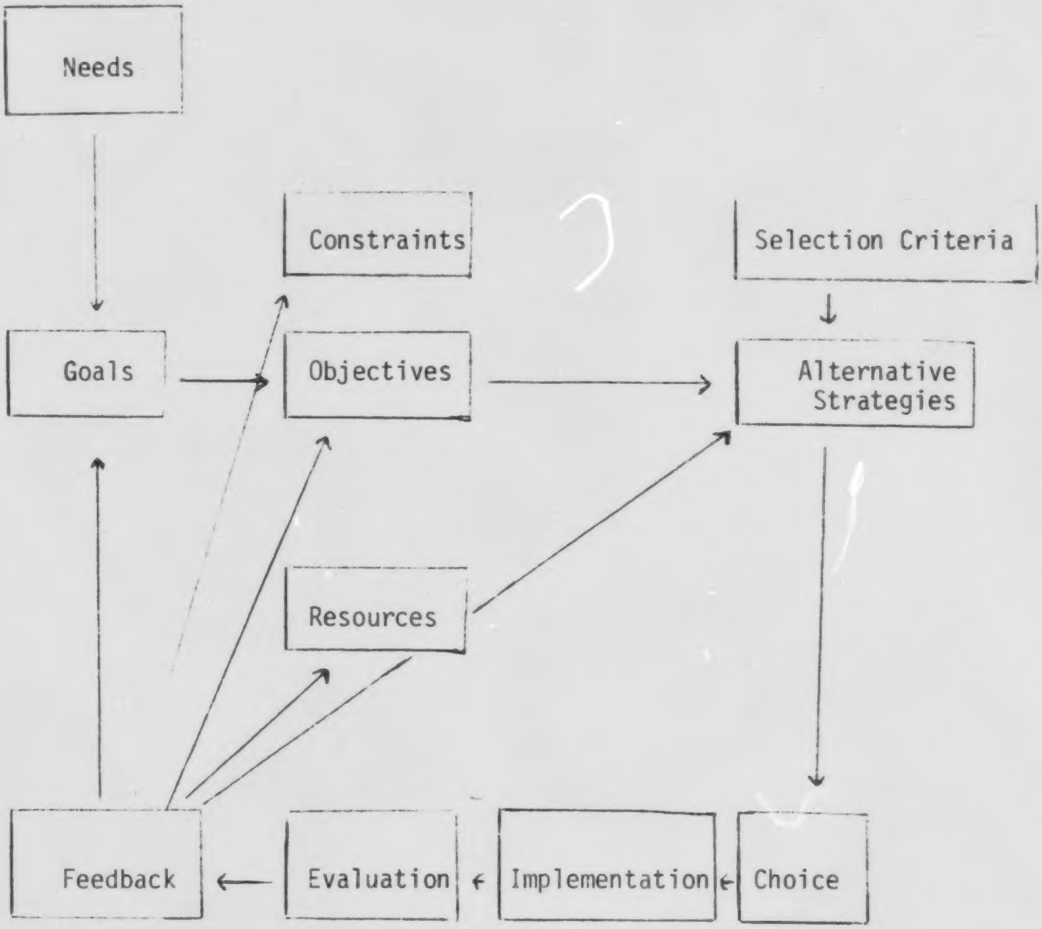
Needs
Constraints
Selection Criteria
Goals
Objectives
Alternative Strategies
Resources
Feedback
Evaluation
Implementation
Choice

Figure 1. Program planning and evaluation model.

(a) Needs. These are areas void of or weak in services, production or development (where such a lack is judged to be damaging).

(b) Goals. General statement revealing assumptions made about expected outcomes of an organized program. Few goals are needed and they should identify a program area: its targets, purpose, expected results and expected completion date.

(c) Constraints. Factors of environment which limit the scope and results of objectives.

(d) Objectives. Statements written in behavioural terms which describe the expected results of planned activities and events. There are two main types - administrative and outcome objectives.

(e) Resources. Human, technological, financial, organizational materials available for use.

(f) Alternative Strategies. All potential means for reaching goals.

(g) Selection Criteria. Bases for the selection of a particular strategy.

(h) Evaluation. Delineating, obtaining and providing useful information for judging decision alternatives.

(i) Feedback. Information from evaluation which has implications for future planning.

I particularly like this model because it makes us respond to real needs. For example, for years parents of handicapped children have said: "I would have coped a lot better if I had been put in touch with a parent who had already experienced what I went through". Whelan eventually responded and is now providing this service in Manchester with outstanding results. This service meets real needs and is neat, inexpensive and "unprofessional".

The Planning Model also ensures that we capitalize on the resources unique to particular environments. For example, the Honeylands residential and treatment project capitalized on the availability of a residential unit for T.B. patients which was no longer required. The project is an outstanding success and many people call for its exact replication in other places. However, I suggest our strategy ought to be to identify our particular needs, goals, objectives, resources etc., and to design a service tailored to those unique conditions.

Finally, I appreciate the attention of The Planning Model to administrative as well as clinical considerations because these often determine how effective any clinical work will be.

Consumers

Genuine involvement of consumers is complex, difficult and time-consuming. However, the over-riding benefit is that consumer involvement keeps the service and the service-providers honest. The consumer must be given real access to decision making; tokenism is very obvious is Australia. I agree with Wolfensberger that consumers and their groups should not try to provide directly the services the Government has not yet provided. Their most productive and far reaching activity is more likely to be felt through

(a) Consumer and Advisory Boards
(b) Public awareness programming
(c) Monitoring and evaluation
(d) The stimulation of relevant research

Researchers and Evaluators

The U.S. emphasis on evaluation has not yet reached Australia. However, as competition for Federal "seed" money increases, undoubtedly there will be an increased insistence on evaluation.

Some relevant focal points for researchers in developmental disabilities include the following:

(a) Specific description and publicising of programs that are effective.
(b) Examining how aspects of good programs can be transplanted.
(c) Investigating how practitioners can be taught to provide good services in less than optimal systems. I am thinking here of Whelan's interest in the question of "What do we do when the circus leaves town", i.e. when the visiting experts and consultants move out.
(d) Investigating how bureaucratic systems can be changed or re-directed to their original goals (the development of administrative enemas for impacted systems!).

(e) Costing of alternative programs, e.g. institutions versus small group homes, educational integration with resource teacher versus special class or school.

(f) Demonstration of the financial benefit to the state of the developmental progress of handicapped persons.

Weiss suggests research on some underlying problems:

> "There may be great potential in doing research on the processes that give rise to certain problems, the institutional structures that contribute to their origin and assistance, the social arrangements that overwhelm efforts to eradicate them and the points at which they are vulnerable to societal intervention." (Weiss, p.24, 1973)

While the attention to program evaluation is basically healthy, one still must take a hard-headed view of the evaluative process and its impact. Weiss makes the following points:

(a) a considerable amount of ineffectiveness in a program may be tolerated if a program fits well with the prevailing values, satisfies voters, or pays off political debts.

(b) Relatively few evaluation studies have had a noticeable effect on the making or remaking of public policy.

(c) Perhaps one of the reasons that evaluations are so readily disregarded is that they address only official goals.

(d) Presidents, Governors, Legislators have a relatively short time perspective, so emphasis tends to be on take-offs and not on landings.

Personnel Preparers

Australian Universities and colleges must also address the real needs of society as well as remaining centres of intellectual excellence. Those who prepare workers for the human services, whether in education, social welfare, psychology, medicine and allied health disciplines, should identify and teach the hidden curriculum - the one that is only learned after one's training and entry into the service industry. In the preparation of psychologists for example, there is a heavy emphasis on developing "scientific students of human behaviour". Many new graduates find it difficult to cope as psychologists in the real world.

(On one occasion I found a recently graduated psychologist, crying in her office. She quickly told me what the problem was - "I can't get anything done; I'm only good at passing exams".)

The higher education and the service institutions are at fault here. There is obviously a strong case for Australia to experiment with the University Affiliated Facility model (UAF) which operates in the United States. The major aim of UAFs is to train professionals who will be useful in the human services. While the training is university-based it takes place in service settings.

There are definite advantages to the UAFs system of training. First, students are prepared for a role in the work force. The thrust of their programme is theoretical and applied. They do not need extensive induction or re-training upon graduation. Second, the lecturers are more in touch with the community and its service needs. Their course content reflects this perspective. Third, because they actually do some clinical work, the lecturers tend to be aware of the organisational and administrative aspects of service delivery- factors on which clinical outcome usually depends. Fourth, long after the students graduate from the UAFs, the lecturers remain useful contacts and consultants for them.

CONCLUSION

I believe that services for developmentally disabled people and for the general community will show marked improvement when we thoroughly put into effect the integration philosophy. Integration should not merely be used as a simplistic guide to educational placement. The integration philosophy must permeate our systems and influence the manner (i) in which government departments operate and work with each other and with private organizations; (ii) in which personnel for generic and special services are trained; and (iii) in which administrators and direct service personnel respond to clients' needs. An integrated and comprehensive service will ensure that developmentally disabled citizens will not be devalued, nor will they be seen as separate or "afterthoughts".

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RESOURCE MANAGEMENT AND UTILIZATION IN SPECIAL EDUCATION

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Resource Management and Utilization in Special Education

Trevor R. Parmenter

> *We do not know, generally speaking, where we have been, where we are travelling now, where we should be travelling, or even whether our method of getting there is appropriate.*
>
> Senator Peter Baume,
> (Sydney Morning Herald, 4.5.79)

INTRODUCTION

While Senator Baume was referring here to the findings of the Senate Standing Committee on Social Welfare (Baume, 1979), which investigated evaluation in Australian Health and Welfare Services, his sentiments are appropriate for education services in general and to special education services in particular. For both the Cadman (1976) and the more recent Williams (1979) Reports highlighted the lack of a coherent and co-ordinated policy for service delivery to children and adults with special needs in both state and private education systems.

However, these papers will not seek to denigrate the many welcome advances such as those made in physical provisions for the education of the handicapped and the introduction of specialized teacher training courses during the 70's. What they will attempt to do rather is to make suggestions as to how educational systems may meet more effectively the many challenges which will confront us during the 80's; for example, how to locate effective leadership in special education within the general education system.

Traditionally special education has worked on a principle of exclusion so that class teachers and their principals have found it convenient to leave the responsibility for "difficult" children in the hands of special classes or special schools. The result has been that within this almost parallel system there has developed an *esprit de corps* not often found in the general system. However, in recent years two developments have begun to affect the twin structures, traditional for example in N.S.W. Firstly, there has been a greater devolution of power from the central administration of education to regional offices which have now assumed greater direct responsibility for policy directions in special education. Secondly, there is a distinct policy shift towards the maintenance, wherever possible, of handicapped children in regular classes and schools. A related challenge for special education therefore will be the degree to which special resources can be delivered *effectively* to handicapped children in a period of relatively diminishing resources for education. A further challenge will come from the growing consumer and advocacy movements which, despite their positive features, will at times lead to a greater politicization of educational administration with the possibility of debilitating consequences.

In order to explore these issues and to provide some thoughts as to how some of the problems may be met, two papers follow. The first discusses the need for effective leadership in special education while the second provides some examples of the use of a systems approach in meeting the needs of handicapped children at the various levels of education services.

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The Role of Leadership in Promoting Change in Special Education

Trevor R. Parmenter

THE HUMAN ELEMENT

One of the basic tenets of this paper is that the most critical element in the administration and delivery of special education services is the understanding and appreciation of the human factor. This sentiment is echoed appropriately by Newell (1978:ix)

> *... schools will improve only as administrators and teachers grow in their understanding of human behaviour ... The human qualities of individual persons are often lost in the routines of running schools and in the crises which inevitably occur in educational organization. While administration and organization are essential, they should be consistent with the central task of the schools, which is a human task concerning the development of human beings.*

For effective leadership at the school, regional and central administration levels to occur, the adoption of this principle is paramount. This is not less true for special educators who will increasingly be called upon to work with a diverse set of professionals, staff and parent groups as their roles are redefined in the emerging delivery models.

Before proceeding to examine in more detail the challenges confronting leadership in special education and the way they may be met, it may be useful to discuss briefly the concept of the school as a social system in order to help us clarify some of the forces which confront administrators.

THE SCHOOL AS A SOCIAL SYSTEM

One of the classic models describing educational administration as a social process is that developed by Getzels and Guba (1957) with later expansions by Getzels and Thelen (1960) and Getzels, Lipham and Campbell (1968). In the original model (Fig. 1) there are two classes of phenomena; the normative or nomethetic dimension and the personal or idiographic. The normative dimension encompasses the institution's goals, role and role expectations. For example, an institution such as a school is made up of people who have been organized into particular roles that are performed within a prescribed set of guidelines. These guidelines determine the specific expectations that the school must fulfil. On the other hand the personal dimension centres upon the individual, his/her personality and his/her need dispositions. The individual's personality is seen as a dynamic and active factor rather than something passive. This in turn may determine the various needs the individual may seek to satisfy. It is this personal dimension which was alluded to above.

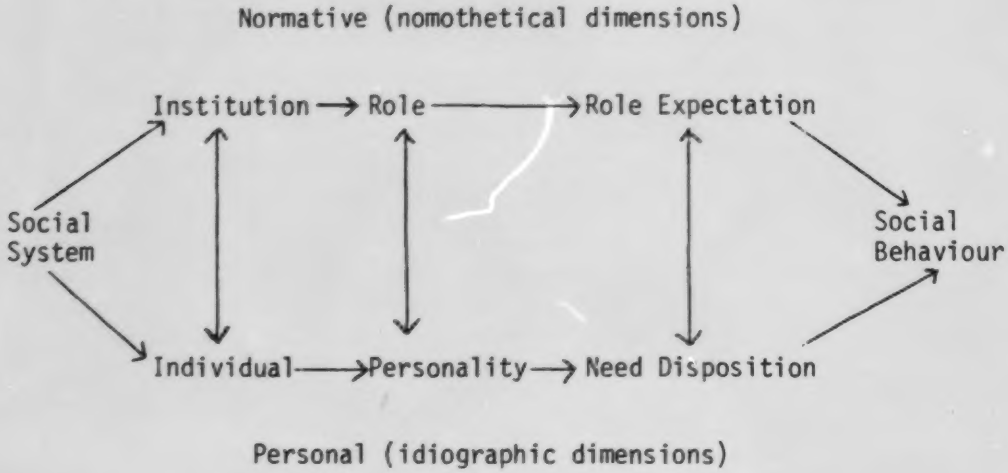
Normative (nomothetical dimensions)
Institution
Role
Role Expectation
Social System
Social Behaviour
Individual
Personality
Need Disposition
Personal (idiographic dimensions)

FIGURE 1: The Normative and Personal Dimensions of Social Behaviour (Getzels and Guba, 1957).

In their more recent adaptation of the model (Fig. 2), Getzels, Lipham and Campbell (1968) have included a series of generic factors drawn from cultural anthropology, sociology and biology on both the normative and personal dimensions to give a social system view. At the personal level they stress the biological nature of individuals, pointing out that individual behaviour can be seen distinct from social behaviour. In describing this model Burello

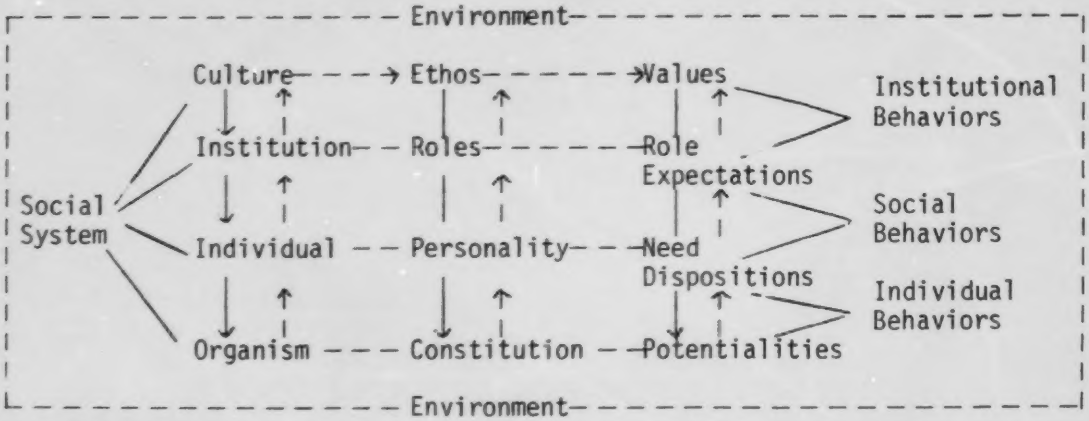
Environment
Culture
Ethos
Values
Institutional Behaviors
Institution
Roles
Role Expectations
Social System
Social Behaviors
Individual
Personality
Need Dispositions
Individual Behaviors
Organism
Constitution
Potentialities
Environment

FIGURE 2: General Model of the Major Dimensions in Behavior in a Social System.
(Getzels, Lipham and Campbell, 1968)

and Sage (1979) point out that while the environment may be held constant there will still be variability in individual behaviour owing to basic constitutional factors in individuals. For instance, on a school staff one would expect to find a wide range of personalities each with his/her own drives to satisfy particular needs, not all of which may be consistent with the normative dimension of the model where the generic factors are the more anthropological variables; culture, ethos and values. It is these factors which determine the setting for the development of the institution's needs, development and support. At the school level the value system of an organization as it concerns disabled groups of children will have a major bearing upon the way the school may choose to deploy its staff. At a higher level the value system of the community will determine the extent to which resources will be made available. In turn the value system of the central administration will determine how these resources will be deployed across schools. Now while value systems are fairly susceptible to change, shifts in culture and ethos are more resistant. A good example of this is the slow pace at which society is moving to a realization of the basic human dignity of handicapped persons. The translation of this cultural change into society's values and finally into positive discrimination programs proceeds slowly, but those of us who have been working with these groups for some time have seen some encouraging developments.

It is the interaction and interrelationships between the three dimensions of the social system; the institutional, social and individual behaviours which will determine how effectively the system will meet its goals.

THE PLACE OF SPECIAL EDUCATION IN THE SOCIAL SYSTEM

The utility of a systems approach to resource management in special education becomes apparent when forces are operating to bring about change. Parsons and Shils (1962) point out that the most general and fundamental property of a system is the interdependence of its parts or variables. This interdependence suggests that there must be some *order* in the relationships among the components of the system so that there is a tendency to self-maintenance or a state of equilibrium. Therefore if one part of the system changes, the other parts will either change or force the deviant to conform to the existing system.

Change is occurring at various levels within the education system generally as well as within special education. Of course, in a broader context society itself is changing. At the societal level increasing pressures are being placed upon schools to perform broader roles while at the same time questions of financial and qualitative accountability are being raised. There are, too, changes in educational philosophies and practices, such as the introduction of school-based curricula which are throwing greater responsibilities upon teachers. In many cases teachers have not been prepared adequately to meet these new pressures. Mention in the Introduction has already been made of some of the changes in special education, but these will be amplified in the following section.

A. Forces for Change

i) General social climate

There is a gradual awareness by society of the principles of normalization and independent living reflected to an extent by the growth and acceptance of consumer and advocacy action groups (Parmenter, 1979a). An example of community involvement is the emergence of groups such as The Association for Handicapped Citizens which is an action group based in the northern suburbs of Sydney, and which is currently analyzing the needs of handicapped children and adults in its area. Here is a good example of parents anticipating community needs rather than waiting for government surveys once the needs have arisen.

ii) Overseas influences

Australian philosophies and practices in education have been strongly influenced by overseas practices. The impact of the courts in the U.S.A. regarding the right of access of handicapped persons to positive discrimination programs and the resultant legislation in the areas such as developmental disabilities, education for all handicapped children and rehabilitation services is having a perceptible effect upon policy decisions in Australia. The recent Warnock Report into Special Education in the U.K. has also been widely publicized throughout local delivery agencies (Warnock, 1978).

iii) Surveys and Reports

The Report of the Interim Committee for Australian Schools Commission (Karmel, 1973) set the scene for change in the early 70's particularly as its recommendations were supported by the Federal Government's fiscal policies. This document and subsequent School Commission Reports have emphasized the principle of maintaining all except the severely handicapped in regular classes. It, too, recommended the setting up of extensive teacher training courses in special education but, as has been pointed out elsewhere, there was, at that stage of the development of Special Education, a dearth of personnel capable of assuming these new leadership roles (Parmenter, 1979b).

Other reports such as the Report of the House of Representatives Select Committee on Specific Learning Difficulties (Cadman, 1976), the Australian Studies in School Performance (Bourke and Keeves, 1977) and a report on the education of mildly intellectually handicapped children in the eastern states commissioned by E.R.D.C. (Watts, Elkins, Henry, Alpert, Atkinson and Cochrane, 1978) have had and continue to have an influence upon policy developments. More recently the Report of the Committee of Inquiry into Education and Training (Williams, 1979) and various inquiries into teacher education in train at the national and state levels will also have an impact. Two further reports, one commissioned by the Schools Commission into the current state of special education services in Australia and the other by The Centre for Educational Research and

Innovations (CERI) of the Organization for Economic Co-operation and Development (OECD) into the effects of schooling and the transition to work of handicapped adolescents will, when complete, add to the date base which will help to chart the directions change will take in the 80's.

iv) Effects of the Courts and Legislation

Currently there is little direct reference to special education services in the Education Acts of the various states, especially in the sense of the U.S.A. Public Law 94-142, *The Education of All Handicapped Children Act*. Nevertheless there is a trend in some states to approach the problems of handicapped persons from the legal viewpoint. Two examples are the Bright Committee of Enquiry in S.A. which has brought down a report on the physically disabled and is shortly to report on the intellectually handicapped; and secondly, the work of the N.S.W. Anti-Discrimination Board. Parent groups such as ACLD and the N.S.W. Council for the Mentally Handicapped, and SPELD in W.A. are also exploring ways of utilizing the courts, although until class actions become possible there is little likelihood of Australia developing an adversarial legal climate comparable to that of the U.S.A.

v) Pressures for accountability

To an extent these pressures have come from forces outside education; the courts, consumer groups, and politicians. However, professionals working within the educational system have been for some time questioning the traditional practices of special education. This has been particularly evident in those areas of disability which were served in many cases by inadequately trained teachers. Better informed parents, too, are questioning the quality of special educational provisions being provided for their handicapped children and they are looking for evidence of improved performance by their children rather than statements concerning increased inputs in the form of money and additional staff.

vi) Results of research

Australia has a long way to go in this area, but the 70's have seen a promising acceleration in research activities in the area of special education. Inevitably researchers are likely to come up with evidence which is not consonant with current practices or philosophies; and in many cases there may be a lack of agreement even among themselves. Even so, it is essential that there be healthy questioning of what is being proposed and practised in this area. For instance, there have been some limited though useful advances in both basic and applied areas of research which are effecting demonstrable changes, albeit slowly, in educational practices. Reference will be made later to pressing research needs in the Australian scene.

vii) Changes in Professional Opinion, e.g. Mainstreaming and Labelling

Although professional opinion is influenced by changing social attitudes and financial considerations, there have also been internal factors which have strengthened its effects upon policy. For instance, many administrators have been persuaded by some research which supports the policy of integration, even partial, of handicapped children with non-handicapped children; although currently this policy finds more philosophical than empirical support[1], and in the area of labelling there is growing support for the practice of categorizing children according to their instructional and managerial needs, rather than a medical etiology. While this does not entirely remove labels, it does relate problems to possible educational solutions.

B. Restraining Forces to Change

Resistance to the forces listed above is amply reflected in the educational system. Burrello and Sage (1979) suggest these restraining forces which move towards self maintenance or equilibrium may be classified as ideological, bureaucratic and pragmatic[2]. It is proposed to use this simple but useful form of analysis in the following discussion.

i) Ideological factors

Ironically, one of the strongest reactions against the moves towards mainstreaming and de-categorization has come from consumer groups; particularly parents and privately established organizations providing direct services to handicapped persons. One can appreciate the disquiet of these groups who, in many cases, fought hard against government and public indifference to have special educational and care facilities established, and are now told that their children would be better off in regular schools and facilities. Since this advice coincides with the State's somewhat belated assumption of financial responsibility for existing special schools, parents are not surprisingly suspicious. Within the ranks of professionals serving the handicapped there has developed the feeling, too, that different groups of handicapped children require highly specialized and unique services pertinent to their particular disabilities. Burrello and Sage (1979:59) note:

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[1] Here the reader is referred to a very useful review of the mainstreaming issue by Meisgeier (1976). See also comments by Watts *et al*. (1978).

[2] A useful summary and additional comment on the problems confronting administrators in special education is to be found in Lamb and Burrello (1979).

> *The process of development and maturation of a professional human service system, the establishment of a field of expertise, its institutionalization, and eventually a dependent reliance on it by the client system, follows a natural routine. From the perspective of the client, the maintenance of a system - that is, one that has successfully (or even minimally) ameliorated an acutely felt need - becomes a major consideration.*

The fact that specialization in educational service delivery may have led to stigmatization has been traded off against the perceived benefits of a highly "custom-tailored" service. Thus there has developed a close symbiotic relationship between consumer and those serving his needs. Naturally, these groups are on the defensive when questions are raised concerning accountability and the effectiveness of their various strategies.

In analyzing these forces, however, one must consider the objective and subjective dimensions of a handicap. One can easily take an objective view, represented by the move to look at functional characteristics rather than etiological causes for classification, but the perceptions of the individual held by his parents, teachers and peers may make up the *major* part of the handicap.

How else does one explain why in some schools handicapped children are warmly accepted, while in others they are rejected? Of course the skills of teachers play a role here, but it is suggested that subjective perceptions probably play a greater role. As the writer has noted elsewhere (Parmenter, 1979b), it is the highly subjective acceptance/rejection factor which will ultimately determine whether handicapped children are readily accepted into the regular school system. There is more evidence for this point of view in the Watts et al. (1978) survey of the education of mildly intellectually handicapped children across three states of Australia. For instance, they found that regular class teachers felt that only a minority of their colleagues would willingly accept these children in their classrooms.

ii) Bureaucratic factors

Two complementary forces are at work within the educational system to maintain the *status quo*. On the one hand there are the "specialist" professionals who have effectively built up the "white coat" image of special education replete with its own quasimedical jargon and practices (e.g. "minimal brain dysfunction" and "dyslexia", together with neuro-physiologically oriented techniques embraced by many special educators), while on the other hand there are the teachers of regular classes who are only too happy to be relieved of the responsibility of their most troublesome pupils. It was not surprising that one of the findings of a comprehensive survey of school principals' attitudes toward the integration of handicapped pupils was that, of all the groups mentioned, the disturbed child was ranked lowest on the list regarding suitability for regular class placement (Ward, Parmenter, Riches and Hauritz, 1979).

There is disquiet, too, among the ranks of special education administrators who fear for the crumbling of their empire. One of their more justifiable fears is that funding for positive discrimination programs for handicapped children will become lost among the resources deployed for the non-handicapped who obviously constitute the majority of the population. Without mechanisms for accountability and checks on the spending of funds such as those existing in the U.S.A., there is every likelihood that the needs of special groups may be overlooked. There is a grave responsibility, therefore, for administrators at the regional level to assume an advocacy role in this matter.

Suggestions concerning the retaining of "difficult" children within the regular system also raise industrial issues with teacher unions which claim, at times with some justification, that the regular system has not been prepared for this added responsibility. The subsequent defensive reactions by the bureaucracy and the involvement of poorly briefed and ill-informed politicians may add to the polarization of views. An example is the popular assertion that smaller class sizes would lead inevitably to more effective instruction and learning for the handicapped among other things.

As one working in the tertiary sector of special education it is also salutory to be reminded that teacher training and research personnel are not insulated from charges of empire building; sometimes at the expense of colleagues in other areas of teacher education.

iii) Pragmatic Factors

As the educational system will seek to protect itself from dramatic shifts in policy or practice, change will come slowly. For example, there will not be any mass exodus of children from special schools or classes in the near future. In the case of the mildly handicapped, *de facto* integration has always operated in practice, as only the most noticeable of them, either for disruptive or extremely withdrawn behaviours, have tended to be referred for special placement. Moreover, a current trend is for the severely and moderately handicapped to be educated in special schools which are increasingly being incorporated into the state system. There are exceptions to this however, and an interesting development in the Catholic school system is the suggestion that pilot classes for the severely and moderately intellectually handicapped be set up in regular schools. Despite the obvious need for this system to recognize more fully its responsibilities in this area, financial considerations will possibly limit any dramatic shifts in its policies.

Probably the greatest advance in planned integration has been made in the area of the sensorily impaired where quite an intensive network of resources has been deployed to maintain large numbers of these children in regular classes. Here is a good example of how the subjective element operates in defining a handicap. In 1965 the writer was associated with one of the earliest attempts in N.S.W. to integrate visually handicapped children into regular secondary school classes. The success of the scheme rested upon the presence of the following criteria:

a) the student looked and behaved "normally".
b) he/she was up to grade standard in the integrated subjects, and
c) the student's presence in the class did not affect the progress of the other students.

Society has traditionally been able to identify with hearing and visual impairment, possibly because they are conditions which even "normal" people may experience. Therefore teachers accept more readily children with sensory defects than they do those with developmental disabilities such as cerebral palsy, autism, mental retardation or learning disabilities.

While ever there is no specific approach to the training of administrators for special education and while ever there is a general ignorance of and indifference to the problems of the handicapped in the general education system, it is predictable no sudden changes will emerge. Here it is somewhat disappointing that the Schools Commission which, in the early stages of its existence, offered a national leadership to special education, has not continued to have such a strong impact. It is hoped that on the basis of the Report of the National Survey conducted by staff of the Schonell Educational Research Centre, the Schools Commission will once again be able to make a dynamic contribution by helping to chart a course for the 80's. For this it will need, of course, adequate finance; a cynic might argue that its earlier influence was in direct proportion to the amount of special purpose funds made available by the Federal Government.

C. The Resolution

If we are indeed caught up in an exorable drift towards the disestablishment of traditional special education structures, those of us currently working in the area have a tremendous responsibility to provide leadership so that the transition does not restrict the growth in the quality of services received by handicapped persons. Evidence from the U.S.A. suggests that when services of high visibility are replaced by services of low visibility, politicians and in turn administrators are not nearly as ready to become involved in positive discrimination programs. As indicated earlier this is one of the fears being expressed by special education administrators.

Advice to special educators by Burrello and Sage (1979) is particularly apposite for they suggest that while we may have won the battle concerning the right of all handicapped children to have access to an appropriate education, we must now apply ourselves to the task of working with our colleagues in the general system as well as with professionals in related disciplines so that a genuine team approach to the problems of the handicapped is fostered. They further suggest that, above all, special educators must have a commitment to excellence and an honest approach to the testing of the effectiveness of their various programs. For example they point out that,

> *The apparent conflict between the doctrine of least restrictive alternative and the delivery of specialized technical services will require a high level of interpretation and negotiation based on evidence, not on rhetoric.*
>
> (Burrello and Sage, 1979:68)

It is to the question of how we might meet these challenges that we shall next turn.

MEETING THE CHALLENGES : PROFESSIONALISM AND LEADERSHIP

The basic long term solution to the challenges confronting special education in the remainder of this century is a continued growth in the professionalism of teachers generally, nurtured by an increase in the quality of leadership at the level of the resource personnel, the principal level, and the level of regional and state administration. As teachers gain more technical skills, a deeper insight into human learning and develop a less normative approach to individual differences, they will be better equipped to tackle the challenges which confront us when a child does not learn "normally". However, if leadership does not provide a suitable climate in which teachers can grow professionally, the future is very bleak indeed.

Role of Leadership in an Educational Setting

Within a school system the primary role of leadership should be to maximize student learning and development. To achieve this goal there are at least three domains in which leadership is crucial. Firstly, the leader acts as a problem solver. However, it is not being asserted that he/she alone is charged with the responsibility of directly finding answers to the problems posed in a school system. Rather he/she, through skilful planning, allows the staff to become involved in the problem solving processes. For instance, it was Kaufman (1968) who suggested that the basic utility of a systems approach to education was the way it allowed problems to be expressed and analyzed so that possible solutions could be more adequately found.

Secondly, the leader has a major role to play in the domain of human relations. He/she must foster the personal and professional development of all members of staff by providing a supportive, congenial and yet challenging environment in which they work. It may sound trite, but one of the most effective ways of achieving this environment is through personal example. While modelling may not produce dramatic results immediately, it nevertheless has a powerful effect in the long term. A genuine concern for the personal growth of teachers on the part of a principal or other persons in leadership roles fosters the mutual respect and trust which form the most important cohesive elements in any social system. Then at a more practical level, the leader ought to provide the support mechanisms which will allow individuals to operate with confidence and integrity. In this way genuine growth in professionalism is more likely to occur.

Finally, those in supervisory roles ought to provide instructional leadership. Again, example is a useful means of achieving this, but to be most effective, however, instructional leaders must continually challenge and be constructively critical of current techniques and philosophies. One of the ways to do this is through the development of a "research mentality" which is highly conscious of the need for accountability. In other words, one ought to be seeking to improve the quality of one's teaching through a search for more effective techniques and strategies. Coupled with this is the need for a willingness to share with and to listen to other points of view. While teaching is often described as an art, there is still a place for objective scientific inquiry. Educational leadership which abdicates this role effectively abrogates the notion that the primary role of leadership is to maximize student learning and development.

Leadership Styles

An unfortunate legacy of the over-centralized and bureaucratized system of education, which evolved in N.S.W. as a result of a combination of geographical and historical factors, has been the relative insecurity of educational leaders, particularly at the school and middle management levels (Parmenter, 1979b). A brief exploration of leadership styles may help us to appreciate how leadership roles may be executed more effectively.

It will be recalled that the Getzels and Guba (1957) model of the dimensions of social behaviour includes: 1) an organizational or nomethetic dimension which concerns organizational decision making or legislative action (task emphasis); and 2) a personal or idiographic dimension which concerns the individual or idea aspect of organization (relational aspect). Three different styles of leadership based upon this model can be conceptualized. (See Fig. 3).

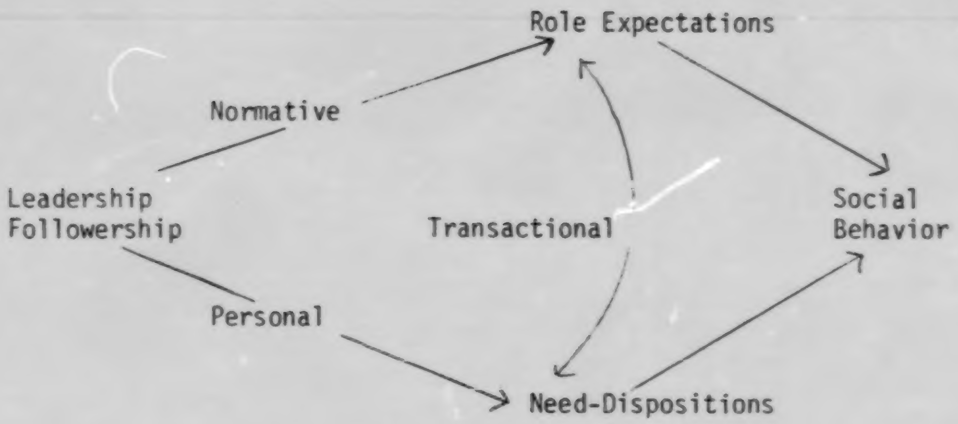

FIGURE 3: Three Leadership-Follower Styles (Getzels and Guba, 1957).

a) Normative Style

This, the most commonly practised type of leadership, is nomothetic leadership which places emphasis upon the institutional needs. It usually emphasizes organizational goals at the expense of individual needs and motivations. A weakness in nomethetic leadership is that individuals in organizations with such leadership are unmotivated because inadequate concern is given to individual aspirations.

b) Personal Style

A second type of leadership is idiographic in that it places emphasis upon the goals, ideas and plans of individual members of the organization. Here it is assumed that the organization will function effectively if all the individuals in the organization are productive and content. A basic weakness of this approach is the difficulty of co-ordinating the disparate needs and purposes of individuals with those of the organization as a whole.

c) Transactional Style

This emerging style may be characterized by its awareness of both the nomethetic and idiographic dimensions of the social system, and its integration of the two. It is a process, suggests Newell (1978:226) "through which the task and human dimensions of organization are reconciled and integrated".

Obviously the above model is an oversimplification of the leadership process. For instance Halpin has added an important dimension by searching for a way to determine leadership effectiveness. Later work by Hersey and Blanchard (1977) suggests that this effectiveness is a function of the leader, followers and situational variables which impinge on the problem solving process. One of the most important of these is group maturity which Burrello and Sage describe as:

> *... behaviours amplified by sharing leadership; setting up trust, assuming responsibility; making commitments and establishing accountability; actively listening to, giving and receiving performance feedback; and remaining open to evaluation.*

Other situational variables which the leader and the organization must take into account when attempting to solve problems and make decisions are power distribution within the system, timing, staff training and capacity, financial resources and degree of community and wider system support. Leadership effectiveness, therefore, depends to a large extent then upon how the leader matches his style to his perception of individual and group maturity and to the interactions among the other variables. Somewhere, as suggested by transactional style, a balance should be struck between organizational needs and a consideration for others.

RESEARCH NEEDS

As stated earlier, for effective leadership to occur in delivering adequate educational services to handicapped children, decisions need to be based upon the results of sound research evidence. However, one of the most disappointing features of the whole question of resource management and the delivery of special education services is the paucity of research in the area. This is particularly evident in the Australian scene where the usual practice is to interpret and copy overseas' models; a practice criticized by Watts et al. (1978). Much of the research that has been conducted is simply survey and correlation work, often lacking a theoretical framework. Happily, however, some attention is being paid to the call by the Cadman Report (1976) for pilot studies on the effects of the policy of integrating children with handicaps into regular school and class programs. For instance, The Macquarie University Downs Program has initiated research into this area (cf Pieterse and Cairns, 1979).

A Council for Exceptional Children survey (cited Burrello, Guarino and Poinsett, 1974) of all U.S. state directors of special education and forty local administrators pinpointed four problem areas:

a) mainstreaming
b) program evaluation
c) professional competence
d) programming for emotionally disturbed and learning disabled children.

Subsequently research priorities were established as follows:

a) program effectiveness
b) diagnosis and programming
c) teacher training and competence
e) early childhood programs

Some additional questions emerge, however, when integration and the interface between special education resource personnel and the regular school staff are considered.

a) What role does the principal play in securing effective support services for his/her teachers who must now provide for children they have traditionally excluded from classroom?

b) Will regular class teachers refer all children with learning problems to supportive service personnel, if available, or will they continue to refer only the most difficult children?

c) What is the emerging role of the school counsellor?

d) What implications does the amount of special help requested by regular class teachers have on the principal's perspective of teacher effectiveness?

e) Will the principal-teacher relationship be affected by differences in perceptions of the organizational climate in the school?

f) Does the general frame of reference that teachers of regular classes hold concerning instruction, learning and evaluation affect their perceptions of the needs of children with learning problems?

g) What are the factors which lead teachers to accept or reject certain children?

Obviously these are only a sample of the many questions which require objective study so that policy decisions may be better informed. For instance, the whole area of instruction and curriculum is inadequately researched. Accordingly, Reynolds and Balow (1972: 359) urge that attention be paid to "variables that help educators to make a difference rather than a prediction". In other words, they are suggesting that we ought to establish, through research, differential instructional systems in the various areas in which children have learning problems. They define an instructional system as "integrated sets of procedures, curricula, and materials, that may be used to achieve certain major learning goals with children" (1972:360). At the local level the suggestion made by Watts et al. (1978) that longitudinal studies ought to be conducted to assess the effectiveness of special programs and of instructional approaches is extremely useful.

CONCLUSION

This paper has examined, in particular, the role of school leadership in providing services to handicapped children who may be found in increasing numbers in regular classrooms. In so doing it has sought to locate the issue in the context of the school as a social system with its normative and personal dimensions. As a concluding thought it may be useful to be reminded of the injunction made by Professor Watts and her team in their 1978 study to the effect that the translation of the philosophical commitment to mainstreaming into adequate services for handicapped children will only occur if policy makers and administrators ensure that the school system has the prerequisite skills to carry it out. The growth of truly professional leadership, complemented with adequate research programs, will surely assist this task.

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The Use of Systems Models In Special Education

Trevor R. Parmenter

Borrowed from missile development, the space program and a variety of other technical activities, systems technology has in recent years had a significant impact upon the behavioural sciences of psychology, education and sociology. Budde (1972:2) defines systems technology as "quantitative common sense" which "provides a means to organize common sense for solving complex problems with multiple solutions". He further suggests that,

> *Behavioral systems are, in most cases, grouped together under such nebulous models as school systems, training systems, and habilitation systems. If these models cannot be defined with some degree of accuracy, their complexity makes them increasingly difficult to deal with in an organized manner.*
>
> *A major contribution of systems technology is that it enables us to blueprint behavioral systems. It allows us to define and deal with these systems in much the same manner that an engineer defines or deals with a missile system, a medical doctor with a circulatory system, or a systems analyst with a data-retrieval system.*

In addition, Budde outlines four components or stages of a systems technology which in many respects are similar to Kaufman's (1968) six-stage problem-solving model.

a) Problem-Analysis is the first stage where the components of the problem are identified; various variables which will affect the system are also specified and the major objectives formulated.

b) Alternative Specification is a process which is used at a variety of problem-solving levels to specify alternative methods of accomplishing the major objectives.

c) Synthesis of Solutions is the examination of the alternative solutions in terms of cost effectiveness or cost benefit. Some factors which may influence the decision are the availability and cost of resources, the relative efficiency of the various solutions and the effectiveness of the solutions in terms of the major objectives.

d) Systematic Application is the final process which typically uses feedback procedures to systematically and continuously implement, operate and evaluate the system so that it reaches its major objectives efficiently and effectively.

There are a number of ways of schematizing systems models in education. For purposes of this discussion three approaches will be presented. First an overview of the place of a child with special needs in the total education system including school, regional and state levels will be given. Next the use of a systems model for the evaluation of a special school's work experience program will be discussed and, finally, a lattice presentation of a delivery system at the school level for a child with special needs will be presented.

A. Delivery and Co-ordination of Services to Children with Special Needs

As indicated in the earlier paper, the basic challenge of the 80's will be the locating of special education more integrally within the general education system. For educational leaders and administrators (these terms are not always synonymous!) who have a genuine commitment to the personal, social and intellectual growth of *all* children, the retention wherever possible of all disabled children with their non-disabled peers should not present insuperable problems. To further our thinking on how this may be achieved let us look briefly at four aspects of a delivery system which operate at each of three levels; the school, the region, and the state.

As Fig. 1 shows, the child is at the centre of the system. The four dimensions of the system, and these are not exhaustive, are: staff deployment and development, curriculum development, community participation and the organization of physical plant and equipment. Each of these sectors will be discussed.

i) Staff Deployment and Development

A central theme running across the three levels is the need for staff development. Without this professional growth regular class teachers and, for that matter, special class teachers, will be unable to meet effectively the needs of handicapped children. Related to this theme is the need for evaluation studies, conducted in an honest and non threatening manner, to see if the system is indeed meeting these needs. A true professional spirit among teachers would welcome this procedure. At the school level the sensitive deployment of staff, hopefully in consultation with the members, will be carried out to maximize the effects of special skills possessed by members. Here it is crucial for resource persons to be used effectively as fully contributing members of a team rather than becoming the teacher who "looks after our troublesome children".

ii) Curriculum Development

Insofar as handicapped children are concerned this is the Achilles' heel of the system at present. From an educational perspective this is the most potent area for affecting positive change in handicapping conditions, yet even teachers with extensive training

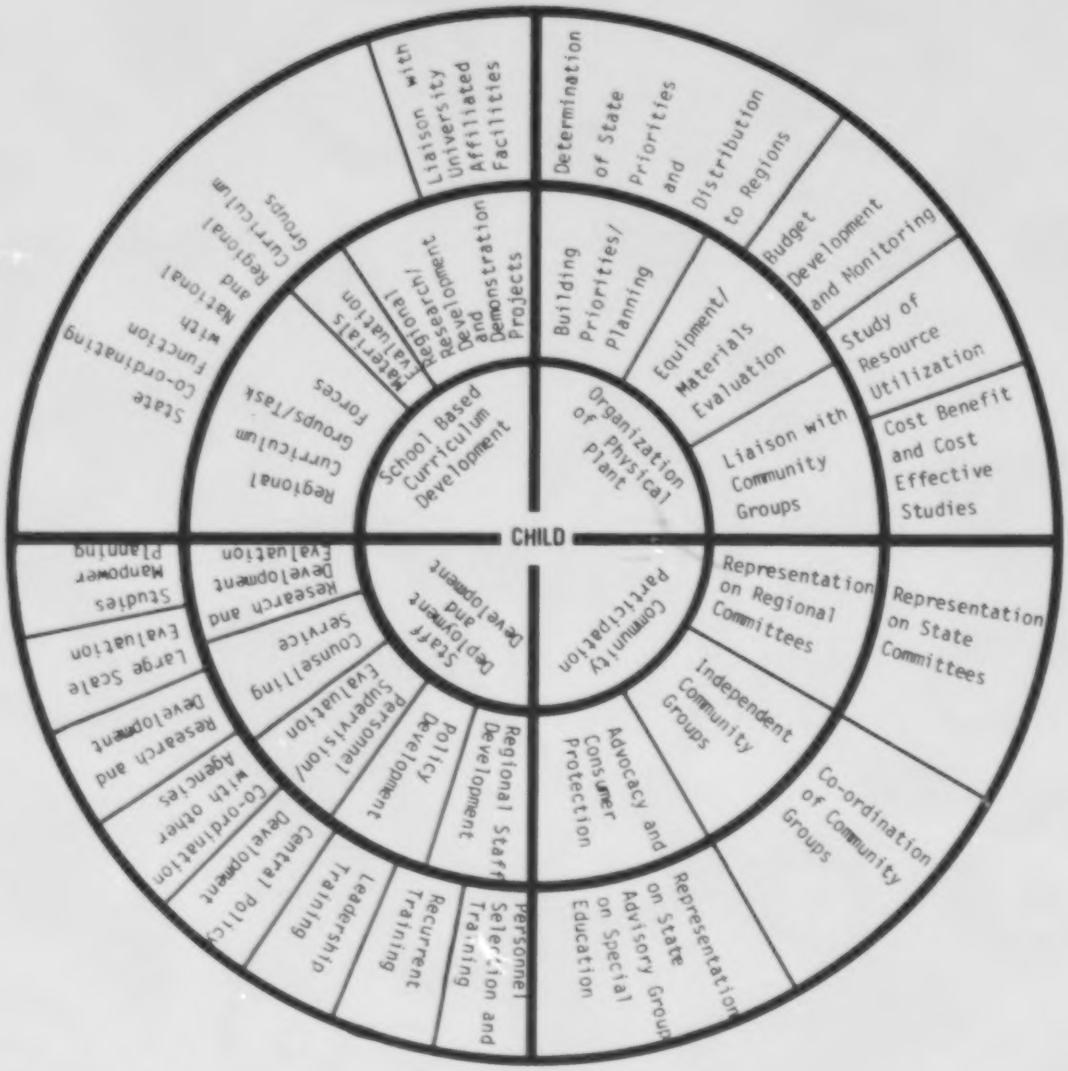
CHILD
School Based Curriculum Development
Organization of Physical Plant
Community Participation
Staff Deployment and Development
Regional Curriculum Groups/Task Forces
Materials Evaluation
Regional/Research/Development and Demonstration Projects
Building Priorities/Planning
Equipment/Materials Evaluation
Liaison with Community Groups
Representation on Regional Committees
Independent Community Groups
Advocacy and Consumer Protection
Regional Staff Development
Policy Development
Personnel Supervision/Evaluation
Counselling Service
Research and Development Evaluation
State Co-ordinating Function with National and Regional Curriculum Groups
Liaison with University Affiliated Facilities
Determination of State Priorities and Distribution to Regions
Budget Development and Monitoring
Study of Resource Utilization
Cost Benefit and Cost Effective Studies
Representation on State Committees
Co-ordination of Community Groups
Representation on State Advisory Group on Special Education
Personnel Selection and Training
Recurrent Training
Leadership Training
Central Policy Development
Co-ordination with other Agencies
Research and Development
Large Scale Evaluation
Studies Manpower Planning

FIG 1. DELIVERY AND COORDINATION OF SERVICES TO CHILDREN WITH SPECIAL NEEDS

and background in special education are inadequately prepared to develop and implement programs which research has demonstrated to be effective. It is submitted that staff at the school level should have ready access to Regional research and development programs which in turn have free access to work being conducted at a state and national level.

Sadly the system is not taking sufficient advantage of demonstration projects being conducted in facilities connected with Universities and Colleges of Advanced Education. Obviously this is not meant to imply that tertiary facilities should dominate this area, but if some of the current efforts of the system to produce curriculum guides in special education are a true indication of the state of the art, then there is an urgent need for researchers in the field to be consulted. This is because many of these documents lack a coherent structure; there is an absence of precisely stated objectives; there is inadequate sequencing; little or no mention is made of performance goals and, above all, there is no explicit statement of the assumptions on which the programs have been formulated. This point of view could be challenged by curriculum developers who embrace a different philosophy from the writer, but there is abundant evidence that curricula with these characteristics are facilitating learning for those with disabilities.

iii) Community Participation

The 80's will see, whether the system likes it or not, a far greater participation of parent and community groups in the decision making processes regarding the delivery of special education services. As noted earlier the movement towards a consumer voice is already with us. The question is how can the system adapt so as to incorporate these groups into a working partnership?

At the school level many useful examples of this are occurring both in special and regular schools. Beyond this level however there is a need to recognize the valuable contribution parent and community groups have to make by affording them representation on Regional and State Committees to advise on special provisions for handicapped persons. Unfortunately there is no mechanism existing at present in the education area at the state level for parent and community groups to have an effective voice. Other states such as Queensland and Victoria have representative committees which can advise the central administration on matters concerning the education of handicapped children.

iv) Organization of Physical Plant and Equipment

If indeed the move is towards restricting the growth of separate facilities for the handicapped, except for the most severely disabled, then the organization of physical plant and equipment to meet the requirements of children at risk educationally is of crucial importance at all levels.

The needs of the physically handicapped are obvious to them but, unfortunately, not always so to architects and planners. The concept of access to buildings and facilities is becoming more widely accepted, again largely because of the consumer voice. In addition, regular school buildings will need to take into account the types of delivery models being planned to bring special services to those children who need them. Happily these factors are being taken into account already in the planning of new schools. What is required also is an effective means whereby various resource models can be tested and the views of practising teachers sought as to the physical requirements of the various models. For instance, what are the implications for a school which opts for the resource teacher being someone who works in a team teaching capacity rather than along a withdrawal model? There is need also for consultation with other professionals who may be required to participate in programs for children with special needs.

In concluding this section it is relevant to refer again to the survey of principals' attitudes toward the integration and management of learning disabled groups (Ward et al., 1979). One of the more obvious findings was that there seemed to be a lack of awareness by principals of the issues involved. While there was a general acceptance of the principle of integration for those with less refractory problems, there was still a strong commitment to special classes within the regular school. It is evident from later analyses of the data that principals particularly need to take a close look at the total delivery system along the lines suggested above so that the place of the child with a learning problem may be better located. Furthermore, despite the blurring of the lines between the disabled and the non-disabled, there is still a need within the total system for advocacy mechanisms for those who are not achieving in the "normal" system. This need was amply demonstrated when Activity Classes were disbanded in the secondary schools. Now, in many cases, there is no one who has a deep commitment to these students.

B. Systems Model for Evaluation of a Work Experience Program

One of the pressing needs to be met in the 80's in the total school system is to convince schools of the need for self-evaluation and to show them how it may be accomplished. The following summary of one such attempt may serve as a model which could be followed.

As a condition of a Schools Commission Innovations Grant to conduct a Work Experience Program a special school was required to conduct an augmented evaluation of the program. In essence this required the school to conduct its own evaluation with the help and advice of an outside consultant. For those interested, a full account of this evaluation is to be found in Parmenter (1978), Searl and Parmenter (1979), and Parmenter and Roberts (1980).

As Fig. 2 indicates, the systems model used consists of three stages; the inputs, the process (or interventions), and the outputs (or products). Important features of such a model are:

a) it allows for a full analysis of the baseline conditions operating before the program commences.
b) it acknowlelges the presence of other conditions which have a bearing upon the success or otherwise of the program.
c) it allows for both ongoing (process) and outcome (product) evaluation of the success of the program.
d) as it is a dynamic model, because of the feedback mechanism, it presents an almost "fail-safe" situation where the hardest thing to do is to fail.

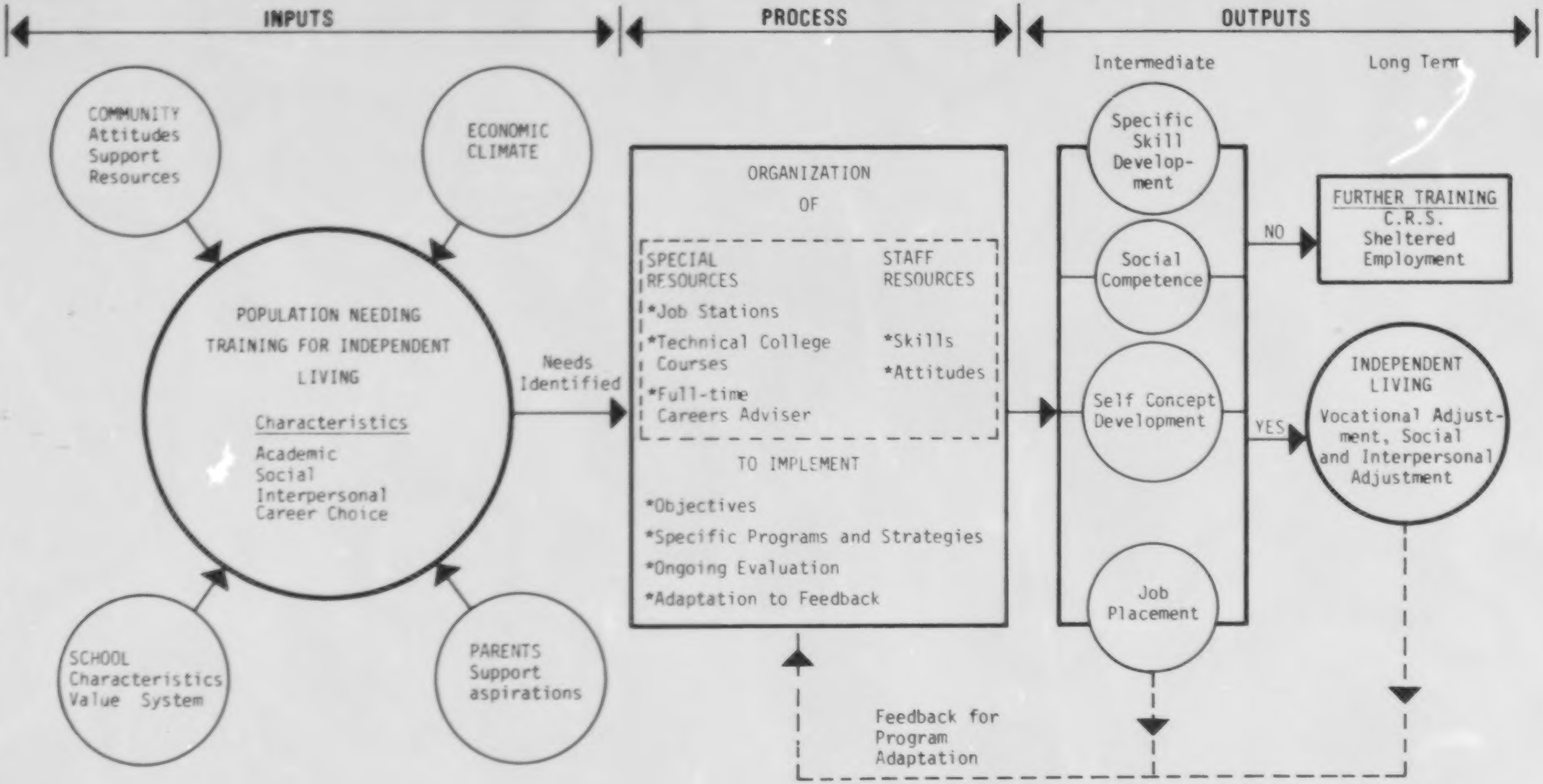
INPUTS
PROCESS
OUTPUTS
Intermediate
Long Term
COMMUNITY
Attitudes
Support
Resources
ECONOMIC
CLIMATE
POPULATION NEEDING
TRAINING FOR INDEPENDENT
LIVING
Characteristics
Academic
Social
Interpersonal
Career Choice
SCHOOL
Characteristics
Value System
PARENTS
Support
aspirations
Needs
Identified
ORGANIZATION
OF
SPECIAL
RESOURCES
*Job Stations
*Technical College
Courses
*Full-time
Careers Adviser
STAFF
RESOURCES
*Skills
*Attitudes
TO IMPLEMENT
*Objectives
*Specific Programs and Strategies
*Ongoing Evaluation
*Adaptation to Feedback
Specific
Skill
Develop-
ment
Social
Competence
Self Concept
Development
Job
Placement
NO
YES
FURTHER TRAINING
C.R.S.
Sheltered
Employment
INDEPENDENT
LIVING
Vocational Adjust-
ment, Social
and Interpersonal
Adjustment
Feedback for
Program
Adaptation

FIGURE 2: SYSTEMS MODEL FOR EVALUATION OF A WORK EXPERIENCE PROGRAM

With the co-operation of the school staff and with some external assistance each stage of the model was successfully carried out. Not unexpectedly there were problems which have been fully admitted to elsewhere (Parmeter and Roberts, 1980). Each stage was accomplished as follows:

i) Inputs

Descriptions of the characteristics of each student in the program along a number of dimensions were compiled, together with statements concerning those variables which interact with the student to produce a unique set of needs. These characteristics plus the specific environmental conditions have a direct effect upon the objectives which are defined under the process and which are seen as solutions to the student's specific needs.

ii) Process

The main features of the process are the way specific resources are assembled to execute the program plans which have been formulated. In the case of this program additional resources included job stations in the community, Technical College courses for selected boys and a staff member to supervise the program full time. In addition, the specific skills, competencies and attitudes of staff members must be taken into account for they will, in large measure, determine the success of the program.

Here, too, an account of the dynamics of the process was recorded, particularly aspects such as ongoing evaluation and feedback which resulted in adaptation of the program.

iii) Outputs

These may be divided into intermediate and long term. The initial evaulation was only able to look at intermediate goals, but more recent data have come to hand which provide a clearer picture of the longer term achievements of the ex-students.

Intermediate or short term goals were assessed at the conclusion of the evaluation study but, in addition, the staff was encouraged to set up on-going assessment procedures during the process period. At the end of the program it was possible to document each student's achievements in all areas of the work experience program (academic, social and vocational). Particular attention was paid to the success or otherwise of various sections of the programs so that weaknesses could be pinpointed and rectified. An example of this occurred when it became obvious that the school's mathematics program was not meeting the students' needs, particularly in the vocational area. Consequently the staff reworked its mathematics program and instituted some intensive remedial work.

Other assessments included the use of the Social and Pre-vocational Information Battery (Halpern, Raffeld, Irwin and Link, 1975), the Burke and Sellin (1972) Self Concept of Ability as a Worker Scale and a Personal/Vocational Checklist which involved parents, employers, teachers and the students rating the students on a number of personal and vocational dimensions. Staff and employers were also given the opportunity to comment upon the usefulness of the work experience program.

Although the above description does not do justice to the comprehensiveness of the final report, it is hoped that it gives an indication of the usefulness of the systems model for evaluation. From subsequent discussions with the school staff it is obvious that the successful implementation of such a model requires careful planning and an involvement and commitment to evaluation as a concept by all members of a staff. Many teachers have an ingrained legacy of the past as they are still looking for someone from outside the school to come and tell them where they are going wrong. It is therefore a novel experience to attempt to evaluate oneself!

C. Lattice of Delivery System for Child with Special Needs

Still within the systems paradigm there is the lattice approach to conceptualizing a problem and its solution, developed initially by Woolman (1962). An example is found in Fig. 3, which is an attempt to portray the steps a school staff might follow in reaching the terminal objective of effectively deliverying services to a child with special needs.

Key features of the lattice are:

i) Entry Behaviours need to be stated before embarking upon a solution to the problem. If these are not clearly recognized the program may commence at too high a level. For instance, it would be most difficult to embark upon the program suggested if the three behaviours mentioned were not present within the staff.

ii) In compiling a lattice the next step is to state explicitly the end goal of the program.

iii) Next the sub-goals are determined. These appear as statements at the top of each of the columns.

iv) For each sub-goal there are a number of en-route goals which are placed underneath, working from the bottom up.

v) Once one sub-goal has been achieved, you move down to the beginning of the enroute goals for the next sub-goal and so on until the terminal objective has been met.

This is basically the model being followed in many of the applied research projects being conducted under the aegis of the Macquarie University Special Education Centre and is the one being taught to students in our under-graduate and post-graduate teaching programs. It differs somewhat from earlier, more psycho-educational models of special education. However, it is suggested that it is more

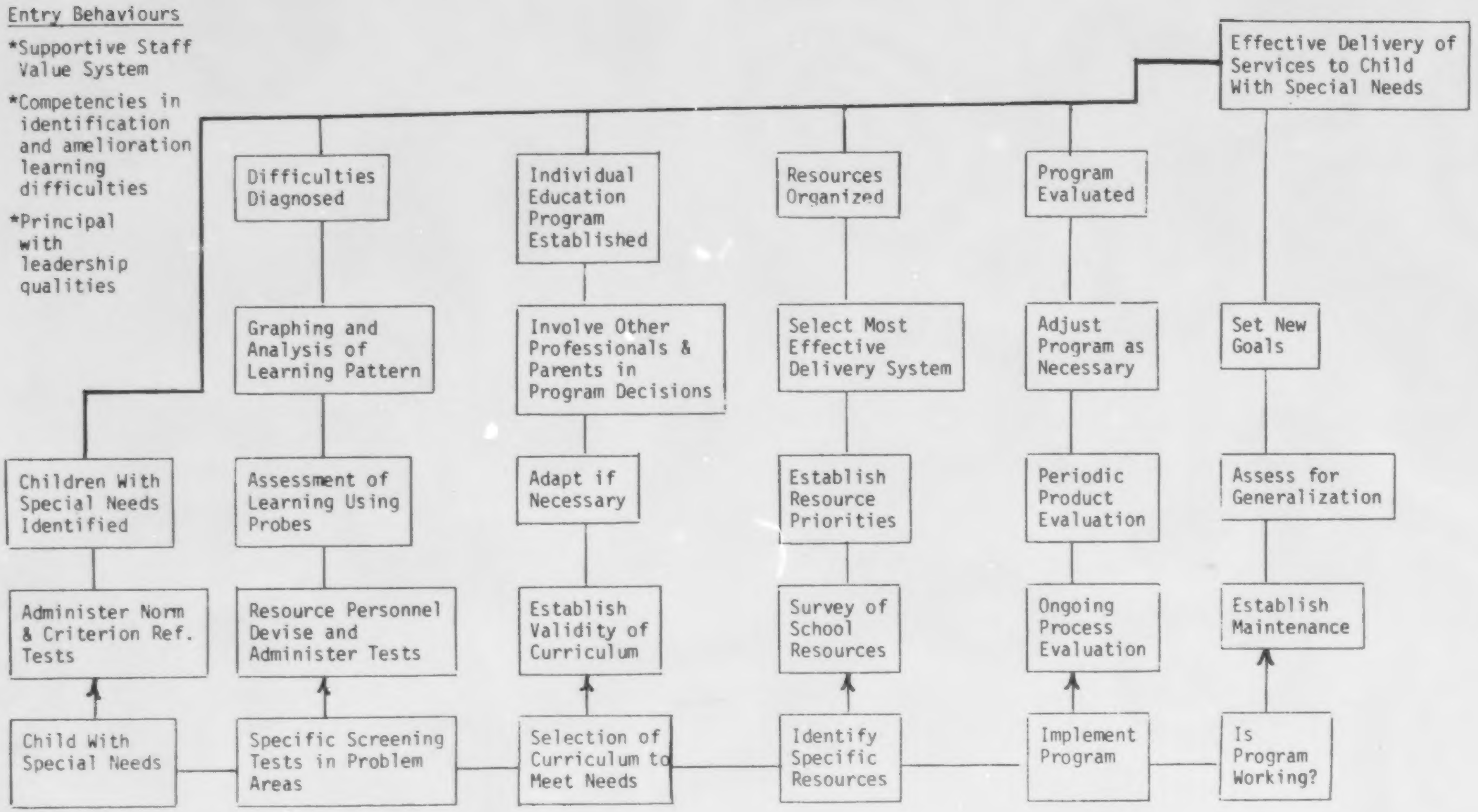
Entry Behaviours
*Supportive Staff Value System
*Competencies in identification and amelioration learning difficulties
*Principal with leadership qualities
Effective Delivery of Services to Child With Special Needs
Difficulties Diagnosed
Individual Education Program Established
Resources Organized
Program Evaluated
Graphing and Analysis of Learning Pattern
Involve Other Professionals & Parents in Program Decisions
Select Most Effective Delivery System
Adjust Program as Necessary
Set New Goals
Children With Special Needs Identified
Assessment of Learning Using Probes
Adapt if Necessary
Establish Resource Priorities
Periodic Product Evaluation
Assess for Generalization
Administer Norm & Criterion Ref. Tests
Resource Personnel Devise and Administer Tests
Establish Validity of Curriculum
Survey of School Resources
Ongoing Process Evaluation
Establish Maintenance
Child With Special Needs
Specific Screening Tests in Problem Areas
Selection of Curriculum to Meet Needs
Identify Specific Resources
Implement Program
Is Program Working?

Fig. 3: LATTICE OF DELIVERY SYSTEM FOR CHILD WITH SPECIAL NEEDS

appropriate and more effective, particularly it if can be supported by adequately trained resource personnel who are fully integrated into the corporate activities of a school.

In summary, then, the essential strength of a systems approach is that it gives an opportunity for both on-going or process evaluation and output or product evaluation to be conducted so that a school or an education system might find answers to the following questions:

i) Are the goals and sub-goals of the program being achieved?

ii) Is there an effective co-ordination of the organizational sub-units?

iii) Are the necessary resources being acquired and maintained?

iv) Is the organization adapting to its environment and its own internal demands?

(Schulberg and Baker, 1968)

CONCLUSION

In a politically and economically unstable world it is unlikely that Australia will be in a position to increase in real terms the amounts being spent upon education and welfare services. Therefore if we are to advance the probabilities that handicapped children will grow to have more independent life styles we have to look to more cost effective ways of delivering special services to them. It is suggested that the use of a systems approach is one such way.

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MULTICULTURAL EDUCATION: THE RHETORIC & THE IRRECONCILABLE

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MULTICULTURAL EDUCATION: THE RHETORIC & THE IRRECONCILABLE

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More words seem to have been written on multi-culturalism as a theme in Australian society than on any other single issue in the last three years. The plethora of words from Federal and State Departments covers issues involving migrants and the law, migrants and health provision, education for multi-culturalism, to name but a few. The most influential report, of course, has been the Galbally report. Most State Departments and even the Federal Department of Education have their post-Galbally policy planning documents following upon the recommendations of that influential report.

What I would like to do is not to revamp the well discussed issues emanating from the Galbally Report, but rather to examine some of the current rhetoric surrounding multi-culturalism; to examine the Federal Government attitude to a multi-cultural society; and to consider the implications of the new "multi-cultural ideal" against two paradigms of social change, thereby pointing to some of the irreconcilable difficulties inherent in such a social and educational goal.

MULTICULTURAL EDUCATION IN AUSTRALIA: THE RHETORIC

First, to begin with, the question of definition:
There are innumerable definitions of multiculturalism and multicultural education. Let me choose that of the Education Department of South Australia to illustrate current thinking and current rhetoric:

"What is multiculturalism?

> Multiculturalism is a positive, dynamic force, a philosophy of support for independent yet interdependent segments of one

society. Each cultural, religious, linguistic or racial grouping within such a society has equal status and the full support of law, custom and authority.

A two way process

A philosophy of multiculturalism is a two way process. It establishes not only the right of each group to preserve and develop its own unique identity but also the responsibility of each group to learn something of the others; to understand and appreciate their contribution to the community of Australia.

Multicultural Education

Multicultural education supports this philosophy and therefore should permeate the total school environment and involve all children. To do so, multicultural education should:

- Reflect the multicultural reality of our Australian society.
- Create opportunities for individuals to develop self-esteem as members of this society.
- Encourage children to understand and value the culture of their own background.
- Develop an awareness and appreciation of the cultures of others.
- Create opportunities for the sharing of experiences that will lead to the valuing of cultural diversity and an enrichment of the whole society.

What this entails for schools is:

- English language development (ESL and language development in all areas of the curriculum).
- Parent and community ;involvement.
- Social education (Australian Studies, Ethnic Studies, Intercultural Studies).
- Community languages (language maintenance and development and a link with ethnic ;and cultural studies within the School."

This rhetoric is persuasive, yet the assumptions on which it is based are logically inconsistent. I would like to take some time in spelling out the almost irreconcilable difficulties inherent in a society espousing increased diversification and yet hoping for national cohesion. Before doing so, let me spell out the principles on which Australia is basing its new multiculturalism, as stated in a Commonwealth. Education Portfolio Discussion paper entitled "Education in a ulticulturalAustralia" (1979). The paper includes a conceptual framework for multi-cultural education, so that educational policies and programs can be devised. Four approaches to ethnic and cultural pluralism in Australia are presented:

1. Assimilation: The key framework for policies prior to 1970. The pre-eminence of the amority group's culture was accepted and policies reflected the view that Australia was a homogeneous society.
2. Structural pluralism: In this decade there has been a trend among Aborigines and other minority groups to institutionalize their cultural distinctiveness through associations, a separate press or media, separate ethnic schools and other social activities. To quote, "This type of development can be described as structural pluralism and it has aroused some anxiety because of the fear of Australian society polarising into antagonistic ethnic groups. Taken to the extreme, structural pluralism would result in a society where there is ethnic diversity but little interaction. The various groups would institutionalize their differences by developing their own ethnic structures such as sporting, social, educational, religious and political organisations. The source of national cohesion would probably be a federal political body" (p.17)
3. Multiculturalism: "an ideal society where groups would co-exist harmoniously, free to maintain many of their distinctive religious, linguistic or social customs, equal in their access to resources and services, civil rights and political power and sharing with the rest of the society particular concern and values, which have national significance.

There would be diversity, equality and interaction through sharing. Ideally each group would have members distributed over the socio-economic range so that each individual would have opportunities for both upward, downward and lateral social mobility. All of the groups would abide by a set of norms that stress tolerance of group differences and the belief that the interests of no one group would be placed ahead of the welfare of the total society. Commitment to change through political processes rather than violence would be an important building block". (p.17) In such a society, the individual would be free to retain most of his ethnic loyalties ... but these would be seen as complementary to, not in conflict with, the loyalties he shares with other Australians, and which form his idkentity as an Australian. It is the individual's ability to transcend his ancestral loyalties by sharing certain concerns and values with the rest of the community which provides the basis for social cohesion (p.18) Interestingly enough, the Report goes on to say that "Multiculturalism is probably the most difficult of all forms of social relationship to establish, yet Australian society already has many features of multiculturalism (e.g. tolerance of religious diversity)" (p,18).

4. Fusion or Synthesis of Cultures: "Fusion acknowledges that two or more cultures have or are gradually converging as each acquires some elements of the other cultures as a result of sharing and interchange. While these cultural systems maintain their autonomy, multiculturalism pertains. On the other hand multiculturalism is transcended when interaction of groups causes the cultural systems to lose their distinctiveness and in the final state of fusion the different cultural strands would become welded into one homogeneous culture ... if fusion is seen as a goal for the

future it could imply that cultural diversity is a temporary condition (not to be encouraged on a long-term basus) and that one single set of values (emerging from all the contributing cultures) is the ideal." (p.19)

These four approaches - assimilation, structural pluralism, multi-culturalism and fusion - point to four possible futures emerging from Australia's increasingly heterogeneous population.

My prognosis for these visions of the future is not optimistic. Five years ago I presented a paper to the World Education Fellowship Conference entitled "Education for a Multi-cultural Society". In that paper I cited an extract from Nathan Glazer's (1969) "Ethnic Groups and Education: Towards the Tolerance of Difference". Let me cite it again, as I believe it is even more valid in 1979, given the pattern of world developments as recent as Islamic fanaticism against the U.S. or as old as the Irish hatred of the British or, on home soil, the bitterness between Serbs and Croations:

> "History and social research convince me there are deep and enduring differences between various ethnic groups, in their educational achievement and in the broader cultural characteristics in which these differences are, I believe, rooted; that these differences cannot be simply associated with the immediate conditions under which these groups live, whether we define these conditions as being those of levels of poverty and exploitation, or prejudice and discrimination and that if we are to have a decent society, men must learn to live with some measure of group difference in educational achievement to tolerate them, and to accept in some degree the disproportion in the distribution of rewards that may flow from differences in educational achievement. I am not sure actually that men can do this."

Some five years later, being asked to reflect on the concept of multiculturalism for Australia, I am still uncertin as to its viability and feasibility as a notion. My current thinking has been influenced by four major experiences:

(1) co-editing a book entitled Mosaic or Melting Pot: Cultural Evolution in Australia with a colleague, Philip de Lacey of the University of Wollongong, in which we had to reflect the diversity of current thinking in Australia on this topic, and to come to terms with processes of cultural interaction in Australia, e.g. considering Witkin's notion of differentiation and Berri's ecological approach, to try to come to terms with the key first principles involved in our evolving society; secondly to consider language and cognition and schooling and aspiration as major mediating mechanisms whereby outcome possibilities, (i.e. prospects and possibilities beyond the school) would be worked through. Always at the back of our minds was the metaphor encompassed in our title "Mosaic or Melting Pot". Which way was Australian society moving? Was the essentially monocultural nature of Australian society changing? Were cultural bridges being built? Was a multicultural society emerging? What were the realities based on research findings concerning attitudes, values, etc. among the diverse cultures in Australia?

(2) the second experience which led to further reflection was undertaking for the ERDC Multicultural Research Priority group an analysis of the approaches used in Teaching English as a Second Language with Maria Tenezakis and Karen Houghton. In this national 'survey', the pervading focus of materials and procedures rather than on an articulated philosophy of second language teaching and learning was apparent, as was the uneasy relationship between ESL teaching, community language teaching, and evolving multicultural curricula. Most apparent was concern with the re-allocation of resources and the placing of focus. Is proficiency in English, for example, a higher goal than first language maintenance?

What comes first for learning optimisation, teaching in L_1 or L_2?

These and a myriad of other concerns convinced me that all is not well in the state of ESL. When such a narrow goal is not so easily achieved, what problematics surround teaching multicultural curriculuum?

(3) an encounter with Christina Paulston's analysis of equilibrium and conflict perspectives as these apply to bi-lingual education and to broader multicultural and societal concerns.

(4) the considerations of the Commonwealth Education Portfolio Group on the implications of multiculturalism in Australia.

So impressed was I with the latter two that I would like to share their thinking with you now and to refer you to Mosaic or Melting Pot and to the ERDC Report on ESL if you are interested in pursuing my own thinking and that of my co-workers in those areas listed in (1) and (2) above as formative experiences for my current concern.

CONFLICT IN PARADIGMS: OR TOWARDS THE IRRECONCILABLE

Paulston (1979) in her recent review article in the Review of Research in Education has noted that no attempt has previously been made to understand bilingual education (and I would add multi-cultural education) from a conceptual framework of paradigms. By paradigms she means the Kuhn (1970) approach, i.e. "the way a scientific-professional community views a field of study, identifies appropriate problems for study, and specifies legitimate concepts and methods" (p.196). Christina Paulston in her own analysis of the controversial field of bilingual education draws upon the work of R.G. Paulston who posited two major paradigms in the field of social and educational change: (1) the functional or 'equilibrium' paradigm, and (2) the 'conflict' paradigm - "Theories that fall within the equilibrium paradigm are evolutionary and neoevolutionary, structural-functionalist, and system analysis. Basically these theories are all concerned with maintaining society in an equilibrium through the harmonious relationship of the social components, and they emphasize smooth, cumulative change. Theoretical approaches which fall within the conflict paradigm are group conflict theory, cultural revitalization theory, and an anarchistic-utopian approach. According to R.G. Paulston (1976), these theories "emphasize the inherent instability of social system and the conflict over values, resources and power that follow as a natural consequence" (p.7); Major issues are economic conflict, conflicting value and cultural systems, and conflict arising from oppressive institutions and imperfect human nature" (Paulston, 1979: 196). I would like to highlight certain aspects of both R.G. Paulston's analysis and of Christina Paulston's analysis as I feel the level of analysis they apply to their diverse domains needs to be applied to the concept, multiculturalism. Such an analysis, I believe, reveals the major inconsistencies inherent in current polemical documents circulating in Australia, both at State and Federal level, and points to some of the irreconcilable dilemmas Australia must face if it continues to espouse a political and social philosophy of multiculturalism.

First, the equilibrium paradigm. To cite R.G. Paulston "... the structural-functional, or S/F framework is a discrete set of interrelated assumptions about values, norms, and appropriate questions and methods. ... the S/F theorists focus on the homeostatic or balancing mechanisms by which societies maintain a "uniform state" ... views societ(y) as essentially stable yet highly complex and differentiated. As the values embodied in institutions such as the educational sub-system are viewed as extremely durable, boundary exchanges between the sub-system and the environment will be equilibrating, i.e. they will tend toward balance" (R.G. Paulston, 1976, p.13, cited in C. Paulston, 1979; 197). C. Paulston judges that structural-functional (S/F) theory has been the dominant theory of social change in American social sciences and has had a strong influence on the interpretation of educational systems and valid educational reform. C. Paulston sees the Bilingual Education Act and its policy ramifications as built on clearly recognizable assumptions emanating from the S/F paradigm, viz. (1) the lack of social and economic success on the part of these minority groups is due to "unequal opportunity" as manifest through different language, culture, and learning styles, and to a lack of scholastic success as a group because of poor English-speaking ability; (2) with the provision of English skills, merit and IQ will lead, through scholastic skills gained in a "meaningful education" to social and economic success. " (Paulston, 1979: 197). In terms of bilingual/bicultural education, this meant a policy of equalizing opportunity for children from limited English-speaking families by compensatory training in English where such training can be theoretically interpreted as a balancing mechanism to maintain the equilibrium of society. According to R.G. Paulston, in this approach "intra-system conflict is usually viewed as pathological, as an indicator of systemic breakdown" (p.13).

Larkin (1970), writing from an S/F perspective, points out that in a technological society "equilibrium is maintained by the educational institution whose major function is seen as the socialization of youth". According to Larkin, the socialization process is two-dimensional. The instrumental aspect is the provision of technical competence: Education is to provide the students with salable skills. The expressive aspect is a "normative orientation in harmony with the values of society" ... or facilitating assimilation into the dominant mainstream culture. But to the S/F theorists, the value transmission function of the schools serves a wider purpose than just assimilation, namely that of pattern maintenance, to use Parson's terms" (p. 198 Paulston, 1979).

The S/F proponents see this process as highly functional in ensuring that the most qualified persons fill the most important positions, and they "contend that inequality is not only inevitable, but necessary and beneficial to all since individual survival is contingent on the survival and well-being of society" (cited in C. Paulston, 1979:198).

To make this issue more concrete, let me locate it in the bilingual education controversy. Here, the basic issue is not really language proficiency in L_1 (minority vernacular) and L_2 (English) but whether the teacher is an Anglo or a member of L_1 ethnic group. In the U.S.A., for example, bilingual/bicultural proponents typically claim that teachers should be members of the same cultural groups as the students and ignore the teachers' proficiency in English as an important qualification. Paulston considers their position, whether theoretical or not, to be one of conflict orientation, whereas ESL proponents place the issue at the level of method and technique and want to maintain an S/F equilibrium. Herein lies a source of conflict. Furthermore, the U.S. government and its legislators perceive assimilation as the goal and transitional B.E. programs as the mechanism, thereby from an S/F viewpoint maintaining vertical equilibrium "by translation of societal needs and goals into institutional goals" (p.197 Paulston).

Within this S/F paradigm the approach to multicultural education can be couched in technocratic concerns - with methods, techniques, curriculum, and teacher training. As Paulston ironically states, "one cannot avoid coming away with a vague feeling that the most important objectives in these programs are for the children to increase their standardized scores on tests in language arts, mathematics, and self-concept, in order to demonstrate that teaching in the mother tongue results in the more efficient learning of English" (p.199). It all has a familiar ring to it, doesn't it, in terms of current concerns in the Australian context? Almost a feeling of deja vu, and yet we will doubtless replicate the approaches and failures of these well publicized and debated and evaluated policies in the U.S.A.

Apart from systemic concerns there are ideals espoused which relate to provisions for equality of opportunity and a belief that bilingual education helps achieve this, e.g. the U.S. Commission on Civil Rights sees bicultural education as providing equal educational opportunity. However, Paulston assesses that no research which investigates whether equal opportunity as manifest through B.E. programs really leads to raised socio-economic status. This is why a shift to the conflict paradigm is becoming more apparent. To cite R.G. Paulston again: "With its limited ability to include, let alone explain, conflict in the calculus of change efforts, the equilibrium paradigm must now seriously compete with alternative views of social and educational reform that see change and instability as constant and unavoidable characteristics of all social organisms and relations" (Cited, p.208).

To move to the second paradigm, then, The Conflict Paradigm.

R.G. Paulston sees three major types of conflict 'theory' emerging more strongly in the past decade or two: (1) Marxist and group conflict explanations of socio-economic conflict, (2) cultural revival or revitalization explanations of value conflict, and (3) the somewhat mixed bag of anarchist and anarchist-utopian explanations of institutional conflict and constraints on human development" (cited in C. Paulston, 1979: P.208). "All variants of conflict thoeory reject the evolutionists' and functionists' image of society as a system of benign self-regulating mechanisms where maintenance of social equilibrium and harmony is 'functional' and disruption of harmony is 'dysfunctional'. Formal education is here viewed as a part of the ideological structure which a ruling class controls to maintain its dominance over the masses, and because formal education is dependent on the economic and political institutions, it cannot be a primary agent of social transformation ... it can only follow changes in the imperatives of the economic and political social order" (cited in Paulston, 1979: j 208):

> Unequal opportunity, the existence of which is most certainly not denied, tends to be seen as a result of a condition of inequity rather than as a cause of school failure. Consequently, on conflict-oriented studies the solutions to the educational problems of bilingual programs are rarely sought in terms of technocratic efficiency; in fact they are rarely sought within the programs themselves but rather are seen

> to lie outside the programs. Different language teaching methods are held to account for very little of achieved language proficiency.

From a conflict perspective, it is the social factors which are seen to influence the success or failure of programs.

Fishman (1977) distinguishes two typologies of bilingual education: (1) a school-oriented type concerned with program outcomes, and (2) "context oriented" programs which classify by the social factors which contribute to the establishement of the program. Context-oriented typologies hold the higher priority since they are more likely to facilitate the identification of salient social dimensions and the formulation of theoretical perspectives.

> "The long-range goals of the programs, seen from a conflict perspective, follow the definition of the problem; they are to maximize equity in the distribution of wealth, goods and services. Hence the emphasis is no longer on efficiency but on equity."
>
> (Paulston, p. 209).

Paulston's analysis clearly favours the conflict paradigm. Answering the criticism concerning the clarification of aims and objectives Paulston retorts that: "It is a functionalist technician's mistake to want consensual goals in order to assess the efficiacy of bilingual education programs. The parents want access to goods and services for children, with the least degree of damage to their sense of self" (p.209-210).

Paulston argues that, instead of looking at results or achievement tests to assess program outcomes "it makes a lot more sense to look at employment figures upon leaving school, figures on drug addiction and alcoholism, suicide rates and personality disorders - that is, indicators that measure the social pathology which accompanies social injustice ... The major assumption which underlies most work written within the conflict paradigm is that B.E. programs can only be understood in terms of the relationship between the various interest groups. The relationship is seen as basically one of power conflict:

> "The probability is overwhelming that when two groups with different cultural histories establish contacts that are regular rather than occasional or intermittent, one of the two groups will typically assume dominance over the other" (Schermerhorn, 1970, p.68)

Paulston cites Lenski's (1966) metaphor as suggestive of the difference in world view between the two paradigms: "where functionalists see human societies as social systems, conflict theorists see them as stages on which struggles for power and privilege take place" (Paulston, 1979:210)

To highlight the struggles that do take place in multi-cultural arenas, let me briefly discuss one of the best designed studies on ethnic relations, constructed within the conflict paradigm, undertaken by Schermerhorn (1970). For Schermerhorn, "the central question in comparative research in ethnic relations is: What are the conditions that foster or prevent the integration of ethnic groups into their environing societies? By integration, he does not necessarily mean assimilation but rather an "active and co-ordinated compliance with the ongoing activities and objectives of the dominant group in that society". Integration can include assimilation/incorporation on the one hand or cultural pluralism on the other, as long as the dominant and subordinate groups agree on the collective goals for the latter.

Schermerhorn sees three major causal factors (or independent variables) in determining the nature of the relationship between ethnic groups and the process of integration:

(1) the origin of the contact situation between the subordinate and dominant groups, e.g. annexation, migration and colonisation.

(2) the degree of enclosure (institutional separation or segmentation) of the subordinate group or groups from the siciety wide network or institutions and associations.

(3) the degree of control exercised by dominant groups over access to scarce resources by subordinate groups in a given society.

Contextual factors (or intervening variables) which modify the above include:

(1) whether the dominant and subordinate groups agree and the goals for the latter.
(2) whether the groups share common cultural and structural features.
(3) forms of institutional dominance, i.e. policy dominating economy or vice versa.

The dependent variables are the interweaving patterns of integration or conflict measured by dimensions such as degree of participation in institutional and associational life, including rates of vertical mobility; dissatisfaction of both subordinate and dominant group members with the differential patterns of participation as they see them, together with accompanying ideologies and cultural values; and overt or covert behaviour patterns of subordinates and dominants indicative of conflict and/or harmonious relations. (Paulston, p 211). The emphasis on the social consequences of particular educational strategies is what makes this study so significant and fruitful compared to the S/F concern with achievement scores.

The over-riding question in studies written from a conflict perspective is: "Who stands to gain?" where gain means which group in the power struggle benefits. Hopefully the children do, but whether on narrow dimensions such as school performance or on wider dimensions such as job placement and upward mobility is open to investigation. Whether the society gains most from consensus or conflict is a question to be answered retrospectively by historians.

THE AUSTRALIAN ARENA AND SOME CURRENT IMPLICATIONS

The group preparing the discussion paper for the Commonwealth Education Portfolio was aware of certain implications of their espoused policy of multiculturalism

(1) the continuing *tension* between conformity and diversity in a multicultural Australian society.

(2) the need to spell out the elements (the structures and the values) that produce *cohesion* in a multicultural Australian society.

(3) have to foster *equality* of opportunity for all groups in a multicultural Australia.

Tension

This is implicit in the acceptance of the goal of multiculturalism, since it will be difficult to resolve permanently the question of the minimum of common values and practices necessary for the continued existence of a society committed to maximizing the opportunities for choice and diversity, e.g. "There will be continuing debate about the point at which increased diversity would allow privileges for particular groups within society at the expense of equal opportunities for others" (p.207).

"However, major social intellectual and other developments have often occurred when there has been creative tension among competing ideas and approaches to life ... a true multicultural society would be one in which the participants were respectful of everyone's right to be different and committed to the resolution of difficulties through accepted political and legal processes."

Cohesion

The degree to which cohesion is required in a multicultural society is problematic. "At present, many seem to believe that cohesion in Australian society is produced only by identification with the culture of the dominant group. This view can be questioned in a democratic society where a quarter of the population are not of Anglo-Celtic descent and there is a need to consider whether a new synthesis of social cohesion based on all ethnic groups in Australia is possible ... Australia in the late 1970's can be regarded as a nation-state, with its diverse citizens unified by a shared territory, a federal constitution and a common legal system" (p.21). Cohesive elements which are currently welding the nation together include national institutions (e.g. parliament, the legal system, an impartial public service, the school system), language (all Australians must be given the ability to learn English), shared values (e.g. belief in democracy and in family life and in religious freedom, and in egalitarianism).

Equality in a Multicultural Society

Equality is seen as equal treatment and equality of opportunity: "In a multicultural society, access to some non-competitive opportunities (e.g. education) and also fair competition between members of different ethnic groups for limited opportunities (e.g. desirable jobjs) become a focus in discussing equality. The adoption of multiculturalism means that there will be continuing debate about how increased diversity for some affects equality of opportunity for themselves and for others, e.g. the conflict between the traditional role for women held by some ethnic groups and equality of the sexes espoused by the school system" (p.23). Socio-economic status factors are, in the long term, probably more powerful determinants of educational and occupational attainments than ethnicity or sex per se. To me, it is unfortunate that the shifting pendulum has moved from a concern with basic social disadvantage to pause momentarily on discriminatory sex factors and then to move ponderously to ethnic factors. All these inter-relate, as do individual dimensions such as motivation achievement drive, locus of control, self-esteem and capricious factors such as luck and chance. To tie the equality theme too closely to ethnic diversity, misses important hands on the clock of time (contemporary and historical).

The Emerging Aims for Multicultural Australia, then, are:

(1) cultural identity
(2) interaction
(3) cohesion
(4) equality

On the basis of the Paulston Analysis, historical and cultural patterns, and contemporary word events, my prognosis for the emergence of a cohesive Australia, built on diversity and equality and free from negative tension and sectional interest, is not particularly optimistic. I am not alone in this pessimism:

Professor Brian Bill, Dean of the School of Education, Murdoch University, cautioned:

(1) multicultural education is a perspective not a package. Education caters for individuals in a social context.

(2) multicultural society is a fact and it is also a task - need to bring out several minority groups from their ethnic enclaves where with ghetto mentalities they strive to preserve their distinctiveness and resist interacting with each other.

(3) ethnic protectionism erodes community, i.e. it can cancel out the best of school environments; 'ethnic protectionism white-ants our efforts to pull together'. This is true of apathetic Anglo-Australians and of ethnic enclaves.

(4) the myth that each child should have received his or her education in the language of ethnic origin is physically impossible.

Conclusion

I have tried in this paper to present some vignettes of current thinking on multicultural and bicultural education, as reflected in recent overseas literature and in recent State and Federal documents. Based on a period of immersion in the field of multicultural literature particularly as it related to the compilation of Philip de Lacey's book and mine on Mosaic or Melting Pot, and my interest in bilingual education, I have tried to share with you my unease as to the irreconcilability of some of the goals of multiculturalism that Australia is espousing. My unease has been most aptly crystallised by Paulston's analysis of the social factors involved in equilibrium and conflict models of social change, at the centre of current multicultural concern with equality and the re-distribution of jobs, resources and power. Whether this shift can be worked through in systemic fashion or whether conflict is inevitable before new cohesive and shared goals can emerge is problematic. Only social history in Australia will tell.

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ABORIGINAL EDUCATION? :
PREPARING CHILDREN FOR SELF-DETERMINATION -
A COMMON GOAL FOR ALL CHILDREN

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Aboriginal Education? : Preparing Children For Self-determination - A Common Goal For All Children

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The initial interpretation of the commonly used term "aboriginal education" poses problems for many people, including educators. Is the term endeavouring to describe a type of education (supposedly different to "normal" education) or is it endeavouring to describe "normal" education, but for the aboriginal person? We settle for the latter. So far as our research and our instructional commitment is concerned, we support strongly the statement on Aboriginal education embedded in an Australian Information Service publication (1979 : 16) :-

"There is a growing awareness among educationists and governments that education should aim to provide Aboriginals with the skills and knowledge that allow them to freely choose their life style and to determine the extent to which they wish to enter the mainstream society and retain their identity."

To freely choose, one needs to have developed advanced literacy and numeracy skills, at least comparable to those of the population within which one wishes to compete and make choices. Self-determination, or some control over one's destiny involves the use of such advanced skills and knowledge to make appropriate short and long term decisions. Hence the common requirement for all children, including Aboriginals, is to develop an effective and efficient body of skills and knowledge so that real options may be considered and exercised.

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The identification of school-aged Aboriginal children with learning problems has received little attention in the past and emphasis has usually been placed on more global difficulties experienced by Aboriginals such as poor environmental backgrounds, economic hardships or cultural differences. Yet Aboriginal children who attend regular schools have to comply with the educational goals set out by State Education Department syllabi. It is only recently that the assumption has been questioned that all school-aged children have learned at home the concepts in arithmetic, language and reading required for instruction at school to proceed relatively smoothly. For the child whose language at home is different from that used in instruction at school academic failure is a distinct possibility.

Improving skills in reading, language and arithmetic amongst children with learning problems would assist them to develop and exercise greater options in relation to personal and vocational choices. The concept of equality in education, as expressed in the Schools Commission Report for the Triennium 1976-78 (1975), is interpreted as the development in all children of a basic plateau of competence :

> "There is no significant sense in which full citizenship may be attained or power over circumstances achieved if the most basic tool giving independent access to knowledge and information if not consolidated among children...".

To perform adequately in Australian society a child needs to be taught the basic concepts and operations in arithmetic, language and reading. Specific causes of failure must be identified and expressed in such a way that teaching is implicated in correcting the skill deficits.

Once upon a time educators were convinced that linguistically "disadvantaged" children would grow up to be linguistically "disadvantaged" adults. Keeves et al (1973) have suggested that children who have poor literacy skills are usually those children in homes where little English is used. Further, they indicated that without appropriate teaching techniques which emphasize mastery learning of instructionally based objectives, "disadvantaged" children would remain "disadvantaged" in the literacy areas. Hence without appropriate instructional procedures, many linguistically "disadvantaged" children would grow up to be linguistically "disadvantaged" adults. Keeves et al (1978) suggested that a high priority be given to research and evaluation programs which investigated improvement of literacy skills and migrant, Aboriginal and other children with learning difficulties by appropriate instructional procedures.

INSTRUCTIONAL PROGRAMS

In the United States, an independent body of evaluators, the Clark Abt Associates, was asked to conduct research and report findings on the nine year Follow Through project. Their 1977 report indicated that :

1. Basic skill programs emphasizing a high degree of structure were much more successful than "open classroom" or less structures approaches in improving performance of economically disadvantaged children.
2. The Direct Instruction Model, using the DISTAR system, was more successful than any of the other model programmes in helping these children to perform at levels up to or near national norms.

3. Programmes that used less structured teaching techniques or the "open classroom" models showed that their children learned less in reading and maths than similar peers in the ordinary (regular) classrooms even though such programmes had the advantage of extra staff and more equipment.

4. The administration of "self-esteem" tests to children in the Follow Through Project revealed that the "open classroom" or less structured teaching programmes failed to improve "self-esteem" of students, even though that was the major objective of the "open classroom" approaches. The Direct Instruction model, with the major objective of teaching basic skills was the most effective in improving "self-esteem" too. The Follow Through project clearly showed that children who have academic success also improve their "self-esteem".

The Clark Abt Associates report showed that the Direct Instruction Model was largely successful in assisting "disadvantaged" children to catch up with their middle class peers in academic skills. Becker and Engelmann (1977) have correctly pointed out that "this demonstration is the first to show that compensatory education can work", (p.1.).

...The Direct Instruction model emphasizes small group face-to-face instruction by teachers using carefully sequenced lessons in reading, arithmetic and language. The success of this model in Project Follow Through is attributed to the technological details, the highly specific teacher training and the careful daily monitoring of student progress.

The National Evaluation of Follow Through in the United States used a planned variation design to provide a broad range comparison of educational alternatives for teaching the disadvantaged and find out "what works". There were nine major models in the National Evaluation. These were :-

1. Cognitively-Oriented Curriculum Model, which was based on Piaget's theories.
2. Responsive Education Model which was based on Glen Nimict's work in structuring a teaching environment and uses a variety of techniques.
3. Open classroom model which was based on the British Infant School system.
4. Parent Education Model which involved an extension of the work by Ira Gordon with home-based programmes for teaching language and concepts.
5. Bank Street Model which was concerned with the development of the whole child.
6. Tucson Early Education Model which was concerned with a language experience approach initially focusing on teaching bilingual children.
7. The Direct Instruction Model, previously described.
8. Language Development Model which utulized programmed curricula for bilingual children focusing on language development.
9. Behaviour Analysis Model which used modern principles of reinforcement and systematic classroom management procedures.

AUSTRALIAN STUDIES WITH DISADVANTAGED CHILDREN USING DIRECT INSTRUCTION PROGRAMS

Over the past four years evaluation studies on the use of Direct Instruction in a "disadvantaged" public school have been conducted at La Perouse, a Public School with children of Aboriginal and non-Aboriginal backgrounds. Becker and Engelmann (1977) have developed the model called Direct Instruction. Within this model, the emphasis is on direct teacher presentation of material to a group of children in the areas of language, reading and mathematics. They state : "The model is based on the assumption that intelligence develops through interactions with the environment and that by carefully controlling these interactions more efficient teaching can be accomplished." (p.1.).

Basically, the model has two major components. The first deals with the acquisition and maintenance of essential learning behaviours by using behaviour change technology. Here the teacher uses various reinforcement and correction procedures to engender such skills as attention, persistence, motivation.

The second component deals with the development and sequencing of objectives, and tasks used to teach the objectives. Here the program is built primarily on a logical analysis development of the concepts and operations that need to be taught within the skill areas of language, reading and maths. There are four basic rules in relation to program sequences :

1. Where possible, teach a general case.
2. Keep errors to a minimum.
3. Teach the essentials.
4. Provide for adequate practice.

A basic tenet of Direct Instruction is that every child can learn the skills he needs to succeed in school if he is taught precisely.

Briefly, Direct Instruction programs teach the basic concepts and operations needed for school success by

- identifying the concepts and skills to be taught by task analysis, and determining teaching goals. Each teaching section is preceded by a curriculum objective, behavioural objective and in some cases a sub-objective.
- sequentially presenting the concepts and skills. Simple ones first. Then the more complex.
- starting the programs where placement tests indicate. No prior knowledge is assumed.
- continually evaluating pupil progress and making sure that each task is mastered before proceeding to the next task.

From a review of the Follow Through program research conducted over a nine-year period, Becker and Engelmann(1977) have stated two major implications. These are :

1. Redesign schools to systematically teach the lexicon.
2. Redesign schools to teach more.

The discussion section will deal with the two implications in relation to the present project.

The present study was based on a commitment to the more effective instruction of all children. The final report of the Australian Council for Educational Research dealing with literacy and numeracy (Bourke & Keeves, 1977) showed that there were select groups of Australian children with major learning problems. One of the groups demonstrating major learning problems in the basic skills was Aboriginal children. However, there are only some Aboriginal and non-Aboriginal children who have learning problems. The report stated that the average performance of Aboriginal children in Australia (including those attending Aboriginal schools in the Northern Territory) was 15/25 percent below that of Australian students overall in relation to basic academic skills.

There has been increased emphasis on preschool education in Australia. However, with the possible exception of preschool programs such as the Bourke Project (Moffitt & Nurcombe, 1970), little has been done to operationalise the awareness of a need for preschool education into intervention programs which meet the preschool child's specific educational needs. The child whose home language is different from his school's has to be taught skills at an intensive level that are essential to success in school.

The traditional identification of children as "slow learners" who learn slowly and therefore must be taught slowly resulted in the continuing gap between the child's chronological age and the child's levels of skill performance. If the child with learning problems is expected to obtain a level of academic performance in accordance with his chronological age, then instruction has to proceed at a faster than normal rate. If this is not done then we can have the situation reported by Douglas (1974) where 60% of Aboriginal children in New South Wales secondary schools are allocated to slow learning classes largely because of language problems and the effects of these on all school subjects. Numeracy skills have been the target of a recent study commissioned by the House of Representatives Select Committee and conducted by the A.C.E.R. (1976). In this study it was revealed that a significant proportion of children enrolled in regular schools at the 10-14 year age levels did not possess even very simple computational skills. The report estimated that 10,000 students would leave school each year without simple multiplication and subtraction skills and approximately 20,000 without simple division skills.

The rationale behind this study of primary school-aged Aboriginal and non-Aboriginal children emphasises the treatment of the specific learning problems of the children. Relating academic failure to broad economic and social issues may give teachers of Aboriginal and non-Aboriginal children a general understanding of the child's background, but they do not tell the teacher what to teach, nor how to program the teaching of the academic skills the child has not learned.

So far in Australia, the effect of identifying these general causes of school failure has been that we accept less in the way of academic performance from the school-aged child with a "different" socio-economic or cultural background. For example, this is evident in the writings of Craddock (1974) who recognises the importance of minimum essential goals for the Aboriginal child. The implication being that these children cannot attain a "normal" rate of academic development because of their environmental circumstances and as a result should be given a "watered down" curriculum. He states: "In New South Wales we need to modify the existing curriculum,in the first instance so that its own goals might still be obtained, but failing this endeavour so that the clients of the system thus affected might still find useful and rewarding employment." (1974: 27).

The Aboriginal community is not satisfied with this notion. It is evident in the report of the Aboriginal Consultative Group (1975) who defined objectives regarding the education of Aborigines: "We see education as the most important strategy for achieving realistic self-determination for the Aboriginal people of Australia. We see education as in instrument for creating an informed community with intellectual and technological skills in harmony with our own cultural values and identity." (p.3).

This research project looked at what the child must be taught if he is to achieve specific criteria of educational performance, and what programs allow teachers to develop the basic skills the child has not been taught. The populations of the two schools selected comprised both Aboriginal and non-Aboriginal children. Briefly the aims were :

(i) to identify Aboriginal and non-Aboriginal children with specific academic learning problems. This was initially carried out through teacher referrals and various types of achievement tests. The major academic covered were language, reading and arithmetic:

(ii) to provide intervention programs in classroom settings which utilise direct instructional methods in academic learning problem areas.

Some outcome dimensions in relation to the above aims which concerned the practical implementation of the intervention program were:

(i) the speed of the effect:

(ii) the number of children who could benefit from such intervention:

(iii) the degree of benefit acquired:

(iv) the economical training of teachers on the job to be able to implement the intervention programs: and

(v) the social acceptability of the instructional procedures used.

To achieve the major aims of the research project, the identification of learning problems and the remediation of these problems, currently available intervention curricula in arithmetic, language and reading were used. The programs used direct verbal instruction with highly structured and task-analysed concepts, combined with positive reinforcement, modelling and shaping techniques. These components have been shown to be successful in the teaching of children with arithmetic, language and reading problems. (Becker, 1978: Maggs, 1979; Moodie, 1973; Stallings, 1975; Abt Associates, 1977.)

STUDY 1

1. Sample

Subjects were 118 children from La Perouse and 19 from Mogo Public Schools, New South Wales, a total of 137 children. La Perouse, a suburb of Sydney, has a total school enrolment of 240. Approximately one-third of these children were Aboriginal. Mogo, situated some 250 kilometres south of Sydney, is a two-teacher school with a total enrolment of 32 children in February, 1977; 27 of these children were Aboriginal. Of the 103 children in the study, who were both pre- and post-tested, 55 were Aboriginal.

2. Assessment

In February 1976-7, many of the children were non-assessable in terms of the ACER Individual Reading Test for Word Recognition and the Comprehension and Accuracy subtest of the Neale Analysis of Reading Ability. Reading ages were estimated at basal levels of 6.0, 6.0 and 5.8 respectively.

The 137 subjects included in the study were selected by teacher referral, performance on criterion referenced placement tests in Distar Arithmetic, Language and Reading, and performance on norm-referenced reading tests.

(Neale Analysis Reading Ability and the ACER Individual Word Reading Test.) Since the purpose of the study was both remedial and preventative, all Year I children and the Kindergarten were also included. With the exception of the Kindergarten children at La Perouse and Mogo all subjects were pre- and post-tested on the Word Reading Test of the ACER Individual Reading Test, the Neale Analysis of Reading Ability, the Peabody Picture Vocabulary Test (PPVT), Macquarie University Special Education Centre's (MUSEC) Maths Screening Tests. The Neale and the PPVT parallel form were used for the post-testing session.

3. Procedures

The 19 subjects from Mogo were grouped for instruction in Distar Language and Reading according to performance on Distar Placement Test. The 118 subjects from La Perouse comprised children from four classrooms. With the exception of the Kindergarten class, who received instruction as a whole class in Distar Arithmetic I, the children were grouped within their classrooms for instruction in Distar Arithmetic, Language and Reading according to performance on the Distar program's placement tests. Tables 1, 2 and 3 show at La Perouse and Mogo the number of children in each group, the mean age of each group in December 1977, the Distar programs they were exposed to, the number of lessons they were taught and the last lesson taught in 1977 for Distar Arithmetic, Language and Reading respectively.

The daily aim for teachers was that each child would receive thirty minutes intensive direct verbal instruction in Distar Arithmetic, Language and Reading. As can be seen in Tables 1, 2 and 3, this was not always possible owing to occasional interruptions which disrupt any school or classroom timetable. Also some teachers were more effective than others in increasing the rate of stimuli presentations during lessons. Seven teachers, one teacher-aide and two Aboriginal teaching assistants were involved in the study.

INSERT TABLES 1, 2 & 3

4. Experimental Design

The resultant experimental design consisted of a series of the one group pre- and post-test design (Huck et al, 1974: 231). In this design, observations are made before and after the treatment variable has been introduced to a group. In this study, groups were pre-tested in the academic areas of Arithmetic, Language and Reading, exposed to the various programs and post-tested at the end of the school-year.

5. Monitoring

Videotapes were made and independent analysers monitored the teachers' use of instructional procedures in relation to: number of stimuli presented during lesson; number of correct and incorrect responses elicited from the group for individual children and the group as a whole; number of tangible and social praise reinforcers given. In the initial stages of the study and where new skills were first presented in the programs, children were immediately reinforced with social praise or a tangible reinforcer (usually a star or "Smiley" stamp) in combination with social praise for every correct response. Later in the programs and for previously mastered skills correct responses were reinforced on an unpredictable schedule. Other major emphases throughout the study were for teachers to attend only to appropriate academic and social behaviour, to elicit as many correct responses as possible from the children and to maintain 100% participation from the group. Throughout the study teachers were encouraged to move children up to higher performing groups in the programs or down to lower performing groups as their performance on mastery tests indicated. Groups of children were also allowed to skip lessons - especially in reading - when they could attain set criteria levels on mastery tests of new skills.

6. Results

Means and standard deviations for each of the pre- and post test measures are presented for all groups tested during the study. Estimated true scores (Mehrens & Lehmann, 1973: 70) were used in the calculation of gain score group means and standard deviations, these estimates were much closer to group mean scores than subjects' attained scores. Estimated true scores were used instead of obtained scores to avoid the problem of the regression of scores towards the mean, with a sample of children with learning problems the effects of statistical regression could be mistaken for favourable effects of an experimental program.

Differences in the number of subjects in each group as presented in Tables 4, 5, 6, 7 and 8 as compared to Tables 1, 2 and 3 are attributable to experimental mortality - children either enrolled at the school after the pre-testing period and were included in the study of those children originally part of the study, but who transferred to other schools before the post-testing session.

Groups from La Perouse were not pre- and post-tested on the standardized reading tests in 1977 because the chronological age of the majority of these subjects was well below the basal reading ages of the tests used.

Arithmetic

Table 4 shows the mean gain scores and standard deviation for six groups across performance on the MUSEC Mathematics Screening Tests. These tests are based on the N.S.W. Mathematics Curriculum for infant and primary grades and include items measuring children's performance in sets, counting and number operations, rational numbers, written problems and measurement. The Distar Arithmetic programs differ to the N.S.W. Mathematic Curriculum with respect to content and the sequence of teaching arithmetic skills. For example, sets and measurement strands are not taught in Distar Arithmetic. Taking these differences into account then the raw data results show that many children performed correctly on items testing the skills they had been taught in Distar Arithmetic.

Language

Table 5 presents the mean gain score, standard deviation, median, number of children with a gain score of less than nine, and those with a gain score of more than, or equal to, nine months for each group of subjects who received Distar Language instruction.

INSERT TABLES 4 & 5

Approximately 40% of subjects had an estimated true gain score of nine or more than nine mental age months on the Peabody Pictures Vocabulary Test. A Mann-Whitney U test was used to compare the estimated true gain scores of both Aboriginal and non-Aboriginal subjects on the Peabody Picture Vocabulary Test. The value of z obtained was -2.80. Since this value as interpreted from the table of the normal curve, is significant at the 0.05 level, the null hypothesis (that the Aboriginal subjects represented the same population distribution on estimated true gain scores on the Peabody Picture Vocabulary Test as the non-Aboriginal subjects) was rejected.

Reading

Tables 6, 7 and 8 present for each group of subjects mean gain score, standard deviation, median, number of subjects with a gain score of less than nine months and those with a gain score of more than or equal to nine months on the Neale Accuracy and Comprehension subtests and the ACER Individual Reading Test subtest. Table 6 shows that on the Neale Accuracy subtest ten of the fifteen groups had an estimated true gain score mean of more than nine months, after nine months of direct instruction over a twelve-month calendar period. For the accuracy subtest of the Neale test approximately 75% of the subjects showed a nine months or more gain, after nine months of direct instruction over a twelve-month calendar period. Estimated true gain scores for Aboriginal subjects were compared against estimated true gain scores for non-Aboriginal subjects on the Neale Accuracy subtest by a Mann-Whitney U test. The value of z obtained was -0.77. This z value, as interpreted from the table of the normal curve, is not significant at the 0.05 level, thus the null hypothesis (that the Aboriginal subjects represented the same population distribution on estimated true gain scores on the Accuracy subtest of the Neale as the non-Aboriginal subjects) was not rejected.

Table 7 shows than on the Neale Comprehension subtest 32% of the subjects had a nine months or more gain, after nine months of direct instruction over a twelve-month calendar period. Estimated true gain scores for Aboriginal subjects were compared against estimated true gain scores for non-Aboriginal subjects on the Neale Comprehension subtest by a Mann-Whitney U Test. The value of z obtained was -2.68. This value of z as interpreted from the table of the normal curve, is significant at the 0.05 level, thus, the null hypothesis (that the Aboriginal subjects represented the same population distribution on estimated true gain scores on the Comprehension subtest of the Neale as the non-Aboriginal subjects) was rejected.

Table 8 shows that on the ACER Individual Word Reading Test 51% of the subjects showed a nine-month or more gain, after nine months of direct instruction over a twelve-month calendar period. Estimated true gain scores for Aboriginal subjects were compared to the estimated true gain scores of non-Aboriginal subjects on this ACER subtest by a Mann-Whitney U test. The value of z obtained was -1.63. Since this z value, as interpreted from the table of the normal curve, is not significant at the 0.05 level, the null hypothesis (that the Aboriginal subjects represented the same population distribution on estimated true gain scores on the ACER Individual Word Reading Test subtest as the non-Aboriginal subjects) was not rejected.

INSERT TABLES 6, 7, & 8

Discussion

The present investigation was conducted at La Perouse and Mogo Primary schools during 1976 and 1977. Although the study was evaluated separately each year, this discussion section will focus on the major findings and implications over the two years. For a detailed discussion of the findings and implications for the first year of the study, the reader is referred to Maggs & Moore (1977a and 1977b).

(a) Summary of Implications of the 1976 Results:

(i) a better than "normal rate of academic skill development was maintained by the majority of children during the period of instruction across reading the language tests;

(ii) Aboriginal children achieved as well as non-Aboriginal children in the area of academic skills;

(iii) intensive, highly structured programs with specific academic objectives produced the positive results.

(b) Summary of Implications of the 1977 Results:

(i) at least a "normal" rate of academic skill development was maintained by the majority of children during the period of instruction across reading and language tests;

(ii) Aboriginal children achieved as well as non-Aboriginal children on the accuracy subtest of the Neale Analysis of reading and the word reading subtest of the ACER Individual Reading Test. Non-Aboriginal children achieved better than Aboriginal children on the comprehension subtest of the Neale Analysis of Reading and the Peabody Picture Vocabulary Test; however, both groups continued to show an accelerated learning rate in these skill areas;

(iii) the continued positive findings in relation to learning outcomes, indicate that the use of highly structured programs with specific academic objectives combined with the teachers' acquisition of direct instructive skills accounted for the results.

STUDY 2 (Third Year Evaluation)

During the first two years of the study the results indicated that :

1. At least a normal rate of academic skills development was maintained by the majority of children during the period of instruction.
2. Aboriginal children achieved as well as non-Aboriginal children on many of the tested tasks.
3. The continued positive findings in relation to learning outcomes, indicated that the use of highly structured DISTAR programmes accounted for such results and therefore ought to be continued (Maggs & Moore, 1978b).

This study, the third year evaluation in using Direct Instruction programmes at La Perouse Public School, focuses its attention on the attainment, maintenance and generalization of reading accuracy and comprehension skills.

METHOD

Sample

Subjects were 120 children from La Perouse Public School in New South Wales. Of these approximately one-third were Aboriginal children. The childrens' ages ranged from approximately $5\frac{1}{2}$ years to 13 years at the October 1978 testing period. At the commencement of the 1978 school year many of the Kindergarten children were non-assessable on the accuracy and comprehension subtest of the Neale Analysis of Reading Ability. Reading ages were estimated at basal levels of 5.9 and 6.3 respectively.

Procedures

Of the 130 subjects selected in the study many had been following Distar programmes for one or two years. These subjects were regrouped for instruction in Distar Reading according to their performance on criterion referenced placement tests embedded within the Distar programmes. Since the purpose of the study was both preventive and remedial all Kindergarten children during 1978 have been instructed in the Distar Arithmetic, Language and Reading programmes. With the exception of the Kindergarten children all subjects were pre- and post-tested on the Accuracy and Comprehension subtests of the Neale Analysis of Reading.

The daily aim of all Distar lessons was that each child would receive thirty minutes intensive direct instruction in each of the Arithmetic, Language and Reading programmes. Owing to the conditions usually present in normal schools, it was not always possible to achieve the daily aim. Some of the teachers were more effective than others in increasing the rate of stimuli presentations during lessons. Seven teachers, one teacher-aide, and one Aboriginal teaching assistant were involved in the study.

The resultant experimental design consisted of a series of the one group pre- and post-test design, where observations are made before and after the treatment variable has been introduced. In this study groups were pre-tested in reading, instructed in the various Distar programmes and post-tested at the end of the school year.

The first two years of this three year study were sponsored by a Department of Aboriginal Affairs Research grant. The third year was conducted with minimal research support, and was the total responsibility of La Perouse School in relation to implementation, supervision, monitoring, inservice training and evaluation.

RESULTS

Detailed results incorporated the number of children in each group, the mean age of each group in November, 1978, the Distar programmes in which they were instructed, the number of lessons they were taught, the number of hours of Direct Instruction and the last lesson taught in 1978. As well as these implementation details, mean gain scores were reported on the Neale Analysis Test of Reading Ability and the Gap Reading Comprehension Test.

On the Neale Accuracy subtest eleven of the fifteen groups had mean gain scores of more than nine months after nine months of Direct Instruction over a twelve month calendar period. Sixty-seven per cent of the children showed a nine month or more gain on the accuracy subtest. Thirty three per cent of the children showed a nine month or more gain on the Comprehension subtest.

INSERT TABLE 9

The Gap results indicate that fifty-two per cent of Year 2 and 3 students at La Perouse are demonstrating comprehension skills beyond their chronological ages. Table 10 also shows thirty-three per cent of these children were near to or more than twelve reading comprehension age months above their chronological age.

DISCUSSION

The three year study has shown that the number of Aboriginal and non-Aboriginal children who have learning difficulties can be markedly reduced by Direct Instruction methods. In addition the implementation of Direct Instruction as basal programmes in Kindergarten demonstrated that children begin Year 1 with reading skills in accordance with their chronological age. Furthermore those children who have been taught Distar reading skills for two to three years have begun to demonstrate reading comprehension skills in excess of their chronological ages.

More significantly these children have demonstrated comprehension skills beyond the expectations normally held by educators towards children who at one stage have had learning difficulties. The direction of this three year study can be clearly stated "... children who were once 'disadvantaged' are now 'advantaged' in terms of reading comprehension skills development...". In addition this study concurs with the previous overseas empirical research findings in relation to "disadvantaged" or "poor" children.

The findings in this study as well as similar overseas studies now enable teachers, administrators, lecturers and parents to realise the goal of equality of educational outcomes. The realisation of these goals demands a fundamental change in skills and attitudes which have profound implications for :

- classroom instruction

- pre-service teacher training

- in-service teacher training

- administrator's decision-making roles.

INSERT TABLE 10

1. Teachers must be helped to understand that "poor" or 'disadvantaged" children can and have been able to learn at the same level as other children when proper instructional procedures are implemented.
2. Teachers play a central role in determining the nature of the instructional programme and how it is implemented in the classroom. They also determine to a substantial degree the extent to which instruction responds to the needs of all children.
3. Teacher education programmes - both pre-service and in-service - must provide opportunities for teachers and prospective teachers to gain the skills and competencies needed for establishing an environment where the school success of all students is possible, expected and attained.
4. Educational decision makers now have a body of empirical data on which to base their decisions. They can now decide to either keep "disadvantaged" children "disadvantaged" or to enable "disadvantaged" children to become "advantaged".

In summary the fundamental issue is that to prepare children to live in a complex and pluralistic society, one needs to ensure that they are able to exercise options and move outside the walls of their own parochial environment. All too often schools tend to accept the abilities demonstrated within a particular area as immutable and fail to move toward a level of educational attainment comparable to that found in educationally advantaged areas. With such a wide body of evidence educational decision makers have the responsibility to rationally decide that the "disadvantaged" must be turned into "advantaged".

SUMMARY

The results demonstrate the dimensions of (i) accelerated learning gains; (ii) the number of children who have benefited from such intervention; and (iii) the degree of the benefits acquired.

The results of this study show that Aboriginal children have achieved as well as non-Aboriginal children in the area of academic skill development, and also have critical implications for how we instruct teachers. The teachers participating in this program were given only a short intensive workshop training period which provided their first introduction to the various instructional procedures. Once the study began, their pacing, use of reinforcement and the implementation of the programs were monitored by the investigators and a number of lessons were videotaped. The teachers' reinforcement techniques improved with practice and feedback was given to the teachers about the strengths and weaknesses of their lessons. Since the research was conducted within an everyday school situation there is some evidence that it could be easily replicated in other school settings.

Some of the more qualitative comments made at the completion of the first year of the study were worthy of note. Teachers in the two schools found the Distar kits particularly well arranged and comprehensive, and that they relieved them of the task of trying to organise a mixture of commercial and teacher-made materials into sequential curricula of academic skills that they could be sure left no critical gaps. Comments were made that the Distar content and structure allowed the teacher "to get on with instruction". This seemed reasonable in view of the fact that teachers are not trained in curriculum construction. In addition, teachers observed very early in the studies that their instruction was successful because of the children's performance on continuous mastery tests incorporated into the Distar programs. As a result of such observations, teachers became committed to the instructional procedures used during the studies. It is argued that the teachers' instructional skills, commitment and the children's greater levels of achievement, as demonstrated in the classroom and at home, led to the social acceptance of the instructional procedures by the parents.

Implications for the School System

One major implication is that all schools, but especially those that may have children who have linguistic difficulties in the English language on entering formal school, need to systematically teach the lexicon. The concepts and operations (tasks) in the English language identified in terms of specific objectives combined with behaviour change technology need to be implemented and continuously evaluated in the school. While the Distar program is only one approach to the teaching of the lexicon, it is the most thoroughly researched at this stage. Its positive findings in relation to learning outcomes with different populations of children in different settings suggest that the program ought to be implemented more frequently in schools where children are not learning in the infant and early primary years.

The second major implication is that we ought to redesign schools to teach more. This study supports the findings of earlier studies that schools can make a difference in the effective teaching of children with learning problems. Some components which contribute to the "effective" teaching are :

(i) setting of specific objectives which are continuously monitored in relation to the progress of each child;

(ii) every regular teacher must acquire a basic repertoire of skills and techniques that will enable him/her to teach effectively. For instance, the repertoire should include such teaching strategies as : motivating a child; teaching him to pay attention and persist; coping with small-group and individualized instruction in a class of thirty or more children; analyzing skills and content into smaller segments; and evaluating one's own teaching methodology;

(iii) children in schools who have learning problems in the academic skill areas must be given longer periods of effective instruction to speed up their rate of learning.

The adoption of such instructional practices should ensure that schools will more adequately provide for the basic learning needs of all children.

TABLE 1 Implementation of Distar Arithmetic Program At La Perouse Public School, New South Wales

School	Group	Number of Subjects	$\bar{x}$ Age 1.12.77	Distar Program	Number of Lessons Taught	Number of Hours of Instruction	Final Lesson 1976
La Perouse	A	39	5.10	Arithmetic I	81	61	112
	B	25	6.9	Arithmetic I	99	50	
				Arithmetic II	2	1	2
	C	29	7.4	Arithmetic I	52	26	
				Arithmetic II	60	30	60
Total:		93					

TABLE 2 Implementation of Distar Language Program At La Perouse and Mogo Public Schools, New South Wales

School	Group	Number of Subjects	$\bar{x}$ Age of Subjects 1.12.77	Distar Program	Number of Lessons Taught	Number of Hours of Instruction	Final Lesson 1977
La Perouse	A	6	6.10	Language I	9	3	9
	B	25	7.1	Language I	75	38	116
	C	29	7.6	Language I	56	28	
				Language II	7	4	7
Mogo	D	4	9.9	Language I	74	30	74
	E	6	6.9	Language I	30	13	175
	F	7	10.41	Language II	75	40	75
Total:		77					

TABLE 3

Implementation of Distar Reading Program At La Perouse & Mogo Public Schools, New South Wales

School	Group	Number of Subjects	$\bar{x}$ Age of Subjects 1.12.77	Distar Program	Number of Lessons Taught	Number of Hours of Instruction	Final Lesson 1976
La Perouse	A	6	10.1	Reading II	58	29	160
	B	2	8.8	Reading I	58	29	
				Reading II	73	36.5	73
	C	11	8.11	Reading II	101	50.5	102
	D	7	9.11	Reading II	87	43.5	120
	E	9	6.10	Reading I	80	40	
				Reading II	49	25	49
	F	14	7.8	Reading I	58	29	
				Reading II	85	42	85
	G	12	7.5	Reading I	38	18	
				Reading II	120	60	120
	H	13	5.10	Reading I	120	60	124
	I	8	7.1	Reading I	124	62	147
	J	9	7.1	Reading I	105	53	
				Reading II	32	16	32
	K	4	5.10	Reading I	21	60	21
	L	14	5.6	Reading I	120	60	103
	M	9	5.9	Reading I	85	43	74
Mogo	N	2		Reading II	13	7	
				Reading III	43	17	43
	O	7	10.2	Reading II	70	35	
				Reading III	30	15	30
	P	2	8.6	Reading II Fast Cycle	40	18	
				Reading I	35	16	122
	Q	6	8.3	Reading I	121	60	
				Reading II Fast Cycle	23	11	
				Reading II	17	9	17
	R	2	6.9	Reading I	52	26	
				Reading II	88	43	88
	Total:	137					

TABLE 4

Means and Standard Deviations for Children on Macquarie University Special Education Centre Screening Tests over Approximately Nine Months Direct Instruction During A Twelve-Month Calendar Period, 1977

School	Group	n	$\bar{x}$	s	Screening Test	Total No. of Items
La Perouse	A	38	30.27	10.53	Kindergarten	35
	B	22	17.45	5.52	Year 1	42
	C	29	30.83	6.79	Year 2	68
Total:		89				

TABLE 5

Mean Gain Scores, Standard Deviations, Medians, Number of Children With A Gain Score of Less Than Nine Months, More Than Or Equal To Nine Months On The Peabody Picture Vocabulary Test, For Sixty-One Children Over Nine Months of Direct Instruction During A Twelve-Month Calendar Period, 1977.

School	Group	n	$\bar{x}$	s	Median	No. Of Subjects' Gain Score < 9	No. Of Subjects' Gain Score ≥ 9
La Perouse	B	19	7.84	7.07	8	12	7
	C	25	8.52	12.53	7	14	11
Mogo	D	4	-1.75	4.65	-2.5	4	0
	E	6	3.0	6.11	4	4	2
	F	7	11.57	11.03	15	3	4
Total:		61					

TABLE 6 Mean Gain Scores, Standard Deviations, Medians, Number of Children With A Gain Score of Less Than Nine Months, More Than Or Equal To Nine Months On The Neale Analysis Of Reading Ability, Accuracy Subtest For 103 Children Over Nine Months Of Instruction During A Twelve-Month Calendar Period, 1977.

School	Group	n	$\bar{x}$	s	Median	No. Of Subjects' Gain Score < 9	No. Of Subjects' Gain Score ≥ 9
La Perouse	A	5	10.2	12.99	5	4	1
	B	2	15.5	1.5	15.5	0	2
	C	11	23.09	5.33	24	0	11
	D	6	9.8	4.5	9.5	2	4
	E	7	20.28	2.86	21	0	7
	F	12	17.91	5.52	16	0	12
	G	11	21.63	10.01	18	0	11
	H	13	8.1	7.8	3	9	4
	I	8	7.5	4.98	9	3	5
	J	9	15.0	8.49	16	1	8
	N	2	5.5	4.50	5.5	1	1
	O	7	7.42	6.69	11	3	4
	P	2	0	0	0	2	0
	Q	6	11.83	6.09	12.51	1	5
	R	2	25.5	2.25	25.5	0	2
Total:		103					

TABLE 7

Mean Gain Scores, Standard Deviations, Medians, Number of Children With A Gain Score of Less Than Nine Months, More Than or Equal To Nine Months On The Neale Analysis Of Reading Ability, Comprehension Subtest, For 103 Children Over Nine Months of Direct Instruction During A Twelve-Month Calendar Period, 1977.

School	Group	n	$\bar{x}$	s	Median	No. of Subjects' Gain Score < 9	No. of Subjects' Gain Score ≥ 9
La Perouse	A	5	12.6	7.81	8	3	2
	B	2	6.5	1.5	6.5	2	0
	C	11	16.09	10.51	14	3	8
	D	6	4.16	3.76	3	5	1
	E	7	6.42	2.96	6	6	1
	F	12	9.75	6.80	8.5	6	6
	G	11	13.45	7.35	13	4	7
	H	13	1.76	3.4	0	12	1
	I	8	1.75	1.84	1.5	8	0
	J	9	4.44	2.26	3	9	0
Mogo	N	2	12.00	5.00	12	1	1
	O	7	7.57	7.68	8	4	3
	P	2	0	0	0	2	0
	Q	6	5.50	4.53	7	5	1
	R	2	16.0	0	16	0	2
Total:		103				70	33

126

TABLE 8 — Mean Gain Scores, Standard Deviations, Medians, Number Of Children With A Gain Score Of Less Than Nine Months, More Than Or Equal To Nine Months On The ACER Individual Reading Test Word Reading Subtest, For 98 Children Over Nine Months Of Direct Instruction During A Twelve-Month Calendar Period, 1977

School	Group	n	$\bar{x}$	s	Median	No. Of Subjects' Gain Score < 9	No. of Subjects' Gain Score ≥ 9
La Perouse	A						
	B	2	4.5	0.50	45	2	0
	C	11	20.3	5.17	20	0	11
	D	6	9.33	5.40	9	3	3
	E	7	12.71	3.95	12	1	6
	F	12	12.25	4.96	12	3	9
	G	11	19.9	9.84	18	1	10
	H	13	2.30	3.68	0	12	1
	I	8	2.62	3.03	1	7	1
	J	9	6.55	4.52	6	6	3
Mogo	N	2	15.00	2.00	25	0	2
	O	7	4.28	4.55	4	5	2
	P	2	0.50	0.50	0.50	2	0
	Q	6	2.50	1.89	3	6	0
	R	2	12.0	0	12	0	2
Total:		98				48	50

TABLE 9 Mean Gain Scores, Standard Deviations, Medians, Number of Children With A Gain Score of < 9 Months ≥ 9 Months on the Neale Analysis of Reading Ability Accuracy (a) and Comprehension (C) Subtests For 104 Children at La Perouse Public School, 1978

	n	x		s		Median		< 9		≥ 9	
Group*		A	C	A	C	A	C	A	C	A	C
D	16	12	2.1	4.6	3.9	12.5	0	3	15	13	1
E	6	21.5	9.3	6.7	6.1	21.5	7.5	0	4	6	2
F	9	17.3	4.3	3.6	4.1	15	3	0	7	9	2
G	5	8.2	0.6	3.7	1.2	9	0	2	5	3	0
H	2	9.5	0	3.5	0	9.5	0	1	2	1	0
I	11	14.27	7.5	11.2	7.7	10	5	5	9	6	2
J	8	16.0	7.8	6.9	5.1	18.5	8	1	4	7	4
K	1	5	0	0	0	0	0	1	1	0	0
L	8	9.2	12.0	7.3	11.8	6.5	9	5	4	3	4
M	11	11.1	12.5	9.4	10.4	12	13	5	5	6	6
N	7	12.1	9.0	5.1	8.7	4	5	2	5	5	2
O	8	9.2	13.1	6.8	10.2	8	11	4	2	4	6
P	2	2.5	12.5	2.5	1.5	2.5	12.5	2	0	0	2
Q	6	7.1	10.3	7.7	8.9	4	10.5	4	3	2	3
R	2	31.0	9.0	4.0	6.0	31	0	0	1	2	1
Total:	102							35	67	67	35

* Groups A, B, C excluded because Neale test is not sensitive enough to identify the range of small development in beginning reading.

TABLE 10

Gap Reading Comprehension Scores and Chronological Ages of Children In Years 2 And 3 Who Have Received Instruction on Distar Reading Programmes At La Perouse Public School, New South Wales

Subject	C.A. at 1.11.78	G.A.P. Comprehension Age Score	G.A.P. Comprehension in months above C.A.	Year in School
1	9.02	7.11	-15	3
2	7.07	9.04	21	2
3	7.07	8.01	6	2
4	7.11	8.10	11	3
5	8.05	9.04	11	3
6	8.00	10.06	30	2
7	8.03	8.07	4	3
8	9.03	7.00	-21	3
9	8.06	8.00	- 6	3
10	3.09	9.02	5	3
11	9.06	8.02	-16	3
12	7.02	9.06	28	2
13	7.04	8.00	8	2
14	7.06	9.02	20	2
15	9.07	8.03	16	3
16	8.03	10.05	26	2
17	8.06	7.11	- 7	3
18	9.07	9.02	- 5	3
19	9.04	8.04	-12	3
20	8.01	7.10	- 3	2
21	8.07	8.04	- 3	3
22	8.10	9.00	2	3
23	7.06	8.00	6	2
24	9.04	7.09	-19	3
25	6.11	10.00	37	3
26	9.03	8.01	-14	3
27	8.11	8.3	- 8	3
28	7.03	9.05	26	2
29	8.08	8.05	- 3	3

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RECENT DEVELOPMENTS IN SPECIAL EDUCATION : AN OVERVIEW OF THE IYC SEMINAR

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The history of special education indicates that, like other forms of service delivery, it is subject to many major influences, including the ideologies which serve to define community needs and establish priorities, social attitudes which may or may not support them and, perhaps most fundamental of all, the availability of finance. In this particular case, however, it can be claimed that an unusually significant impetus towards change has been provided by professional workers in the field who, along with consumer groups especially, have had a major impact upon community attitudes and the political decision-making to which these are related. Thus in most advanced societies governments have responded positively to the optimism, professional concern and personal commitment of special educators who, across a wide range of handicapping conditions, have demonstrated the ability to attack research problems often previously regarded as too difficult, to provide some technical solutions, to integrate research into practice and through this to organize exemplary services for children at risk. It is to this group which, of course, represents many other disciplines in addition to education, that the IYC Seminar was largely directed, the aim being to provide a challenging up-to-date review of practice at this important point in time.

The proceedings reflect, of course, a wide diversity of topics and theoretical approaches and this inevitably produced problems in the organization of this overview: indeed my first impulse was to abandon all attempts to provide a structure except to comment on the salient aspects of papers seriatim! However, clearly a better strategy is to examine the papers with regard to the main problem areas represented and to select relevant aspects for comment. With this in mind, therefore, I propose to nominate (a) three problem areas in terms of the major target populations for special education and to examine what is said about how to meet the needs of the children concerned (b) I shall then look at some of the technical and organizational issues which are generated from work in these areas and, finally, (c) I shall attempt to give my overall impression of the series and identify some future areas for development.

A. PROBLEM AREAS

The debates surrounding labelling and categorization still proceed although in such important recent documents as the report of the Warnock Committee in the U.K., the principle of categorization, with its spurious implications of causality, is now formally abandoned. Even so I believe that there is still some merit in a general descriptive analysis and the procedure that I have tended to use is that of identifying three basic target populations: the developmentally disabled; those with various forms of learning difficulty; and the emotionally disturbed or maladjusted: although I have recently modified this somewhat by introducing the concept of marginality and non-marginality and reference to this development will be made later.

1. Developmental Disability: A term now firmly established in legal use in the United States has had a number of connotations over the last ten years. The latest definition in Public Law 95-602 is somewhat different in that it now refers to significant deficits in three or more of a number of behavioural areas, rather than merely identifying a group of severely handicapping conditions such as autism and epilepsy: this represents a change from a categorical to a functional approach. Even so, the developmentally disabled, which comprise up to three per cent of the population, continue to be seen as requiring some form of positive discrimination throughout their lives: they are consequently in the forefront of the debates surrounding normalization and the efficiency of the delivery of services.

It is usually accepted that comprehensive programmes for the developmentally disabled include most, if not all, of the following features: - (i) Prevention; (ii) early identification; (iii) early intervention; (iv) carefully planned educational and social programming; (v) preparation for adult life; (vi) support for maintenance in adult life. Such programmes demand strong community support and efficient organization of services, which in the case of the developmentally disabled requires coordinated work by health, education and welfare services. Several of the Seminar papers are directly concerned with these topics: for instance, Pieterse discusses the importance of early education for the handicapped as an essential component of their right to education. However, there is a strong emphasis on items (iv) and (v).

A recurrent theme is the need for efficient instructional technology which can aid the child to transcend all forms of handicap and disadvantage. Thus in drawing our attention to the legal acceptance of responsibility for the severely handicapped, Thorley gives an interesting description of what he terms severely handicapped education, which requires the highest level of technical expertise and should commence as early as possible in the child's life. Thorley is anxious to avoid the imposition of rigid ways of defining educational needs and in so doing expresses a typically optimistic view of the progress of educational technology: implicit in this is the possibility that use of the highest level of technology by well trained special educators may be the most powerful form of advocacy.

Much of the work of the developmentally disabled has been designed to provide high quality instructional packages, each dealing with specific behaviours or groups of behaviours. However, the major papers by Becker and his colleagues deploy a considerable volume of research data which demonstrate that a uniform instructional technology, based upon current work in child development and learning theory, can be used successfully with children over a wide range of handicapping conditions including developmental disability. Direct instruction is perhaps the clearest example of an identifiable and replicable set of procedures and poses a strong challenge to all other forms of teaching the handicapped.

The instructional package is, of course, one aspect of a system and other aspects of delivery systems are considered in more detail in the papers by Shaddock and Parmenter. Shaddock, on the basis of experience both in Australia and abroad, identifies many problems in the general area of delivering professional services.

And, like Parmenter he is committed to the use of systems models, particularly in view of the growing necessity for ongoing evaluation if expensive and scarce resources are to be used effectively. The quality of professional expertise required to work in these difficult problem areas finds mention in a number of papers but the only major reference to the issue of leadership in special education is that made by Parmenter who examines effective leadership against the background of an analysis of schools as social systems. Along with Shaddock he is also concerned with identifying factors which promote or inhibit change, and supplements Shaddock's list with a number of other sources of resistance. The same paper provides several examples of the use of systems models both for conceptualizing problem areas and organizing services. It is evidence of the growing use of operational research methods in special education.

It will be recalled that programming for the developmentally disabled includes preparation for adult life, a topic approached by several workers with specialised interests in this field. In a challenging paper, written from the viewpoint of North American practice, Brolin introduces the concept of career education, pointing out that it is a life-long process concerned with all aspects of individual development. The most interesting part of this paper, to me, lies in the analysis of the major competencies involved in career development, some of which pertain to occupational and adult living skills. At a more technical level the problems involved in preparing the developmentally disabled for work and adult life have been approached in a variety of ways; in New South Wales the Granville Work Preparation Centre is one of them. Often a realistic method is to locate such programmes within schools rather than specialised agencies and the latter half of Parmenter's paper illustrates this, within the context of a programme evaluation which uses a systems model. Indeed the principle of evaluation is mentioned in a number of papers and is clearly destined to become an important theme in all aspects of research and service delivery.

Among the many ways in which research can have an impact is through systematic and high level staff training. The paper by Whelan epitomises this in the area of adult training for the retarded. He attacks a number of problems common to all research centres, training institutions and exemplary service agencies, the most important of which is that of translating research into practice, with the corresponding improvement in the effectiveness of delivery systems. It is interesting to observe the results which can be obtained when there is sufficient central organization for a large scale exercise of this type to be set up. The same issue of theory into practice is also well illustrated in Bochner's paper which deals with the problem of language programming. Reviewing a large number of research studies in this field, Bochner attempts to answer such fundamental questions as where should language training take place and who should be the teacher? On this last point the importance of parents as language teachers is affirmed, as one aspect of the crucial involvement of parents in the educational process. The problems encountered in language training with the developmentally disabled highlight the importance of programming for generalization and reference will be made to this central issue later.

The papers in the area of developmental disability reflect broad assumptions about what is desirable and inevitable in terms of the integration and acceptance of the handicapped and the types of technology which will best serve their habilitation. A powerful stimulus towards integration has been provided through legislation and Brolin traces briefly the recent history of community attempts in the U.S. to bring about change through legislation. These developments have had a powerful influence upon professional opinion in Australia: Shaddock for instance believes that legislation will be required if lasting change is to be achieved and this view would, I think, be shared by several other participants. However, although I believe that American and European experience is of considerable relevance to Australia, legislative changes should be approached with caution. As Watts indicates there is undoubtedly a need for some tidying up and standardization of Australian law, particularly in individual states, but I have some scepticism about human rights legislation imposed upon what is essentially a system of common law. As ever, Watts has some very interesting points to make on the issue of integration. She draws out attention, for example, to the real difficulties experienced by children who are mildly, as opposed to severely handicapped and above all she reminds us that each child is unique, a salutory point when so much discussion of the education of handicapped children takes place within highly structured programmes and formal settings.

2.(i) Learning Difficulties: This very broad set of problems is approached mainly from the stand point of the education of disadvantaged groups such as the urban and rural poor in America, aboriginals and those from ethnic minorities, there being very little discussion of causal factors in the form of psychological or neurological deficits. There can be no doubt that the contemporary research base in this area is dominated by the evidence from the Follow Through project and the results obtained by Direct Instruction and similar behavioural approaches. Becker and his co-workers describe Direct Instruction and illustrate its effectiveness and the use of the model by a review of pertinent literature. They have no difficulty in convincing me that the methods of Direct Instruction offer a strong challenge to all other approaches in that they are based upon a very considerable body of research and practical experience together with a rationale in the newly emerging theory of instruction. In my view the evidence Becker cites from Follow Through is the most powerful and persuasive data available in contemporary educational psychology, deriving as it does from longitudinal studies of large groups with planned variations of treatment. As in the case of Head Start, information may emerge which may cause us to look at Follow Through in a different light and inevitably there has been a methodological challenge to its findings, but I do not think that this has been successful.
We now have a growing range of high quality programmes in use both

in general education and the more specialized problem areas. Moreover the applicability of these methods to Australian conditions is also well documented in the paper by Maggs and his colleagues which indicates that, consistently applied it can produce excellent results with children at the most severe educational and social risk. This represents a most useful and certainly uncommon source of cross-cultural comparisons, with a high degree of experimental control over the technology used.

The populations most amenable to the Direct Instruction approaches seem to be poor children both from urban and rural communities, many of whom have backgrounds in which English is not the first language or if it is spoken at all, appears as some form of distinctive vernacular. An insistence upon teaching such children through English as the dominant language of instruction is, of course, not without its critics both here and abroad. Since the second World War the composition of Australian society has under-gone massive change through large-scale migration, much of this from cultures to which English language and tradition are largely alien. The implications of all this for social organization and for educational systems are still being debated but one concept which receives strong support from some quarters is that of multi-culturalism. It is timely therefore that Poole, in her very interesting paper, should examine the current concepts of multi-culturalism from first principles and express some disquiet over an intemperate acceptance of the position.

Poole does not in fact refer to special education directly but it is not difficult to anticipate controversy, as the bulk of educational problems stem from deficits in language arts performance or in subjects taught through English. For example, the mono-lingual approach adopted by Becker and Engelmen would clearly not be acceptable to those who advocate teaching children basic skills in their first language or the proponents of bi-lingualism. Moreover the factor of ethnicity may impinge upon virtually all problem areas in special education ranging from the developmentally disabled to the emotionally disturbed: in what language do you teach a child of ethnic background who thus far has not acquired any language:

how are psychoeducational problems of adolescence to be treated in the many young people experiencing cultural conflict over their roles?

A considerable awareness of the problems of educating diverse groups was demonstrated by Hotchkis who described the problems inherent in teaching arithmetical processes to children with widely differing past experience and the difficulties such children will face in later education, lacking a basic knowledge of such processes. Even so these problems have to be overcome if children from ethnic minorities are to be given the levels of competence which will fit them for adult life in the dominant culture. Thus one implication is that the educational system should act to prevent gross educational failure and this in fact may be the principal advantage offered by systems such as Direct Instruction.

Controversies which surround the teaching of basic subjects often refer to the sequence of skill acquisition; whether it is more effective to organize instruction around defined behavioural hierarchies rather than to seek opportunities for individual concept development. To a large extent this will depend on the theoretical model adopted and here Goyen approaches the acquisition of reading skills by drawing an extremely useful comparison between the so-called psycholinguistic model and a typical 'behaviourist' approach. This paper draws our attention to both similarities and differences, the impression gained by me being that for practical purposes there may be very few differences; for example, both involve an intensive diagnostic process. Those readers who adopt a conventional view of skill acquisition may however, regard Goodman's model as corresponding to the more natural processes by which children acquire reading. Those who work in special education of course, are mostly concerned with children in whom conventional methods have been a failure and may prefer a more pragmatic approach.

2. (ii) Sensory Handicap The difficulties which children experience in school are compounded by sensory handicap, the most common example of which is deafness and this is the topic of Wilson's paper who reminds us that about seven percent of Australians have some degree of hearing loss. The deaf are a particularly interesting group as,

along with the blind, they have been the most obvious target for special education for well over a hundred years. Work in the problem areas of deafness touches upon every key issue: early identification, early intervention, parent training and guidance, use of prosthetic devices, integration versus segregation have been the subject of lively debates. Special education has, therefore, much to learn from deaf education although it must be observed that its prejudices are somewhat firmly entrenched, as is evident in the controversies over oral as opposed to alternative methods of communication. However, Wilson indicates that the field is becoming more eclectic and that in language teaching in particular, deaf education cannot fail to benefit from the vast amount of work in language development being carried out both with normal children and those with handicaps.

3. Emotionally Disturbed: Like most other areas of special education, the emotionally disturbed contain a hard core group who are considered significantly different in the clinical sense and a very much larger group whose symptoms are transient, though often no less severe. Thus the vast majority of this group cope with their difficulties successfully and mostly without professional help. This makes it extremely difficult to arrive at a reasonably scientific categorization system for children's symptoms, despite the many attempts made both in psychiatry and psychology. This was brought out by Huggins who also drew attention to the responsibility of the school system in both preventing and treating maladjustment. I find emotional disturbance as an extremely interesting problem for the delivery of services. It provides a different perspective, for example, upon integration because children so afflicted whilst in most respects normal, may have to be excluded from their regular classroom, and sometimes their family unit, in order to be treated.

The more severely maladjusted children are often removed from the regular school as an immense threat to themselves and to all those with whom they come into contact. They require patient and sensitive treatment often on a long term basis, during which a wide range of professional skills may be involved. Here those who heard the talk by Dr. Sarah Williams will have been impressed by the intensive team-work approach of the child psychiatry unit. Such specialized agencies are a scarce community resource. Where schools can maintain unhappy and disturbed children through the support of peers and sympathetic teachers it is important that they should do so, particularly where alienation has been caused or worsened by unhappy past school experience. Unfortunately, however, there is a tendency for schools to regard the emotionally disturbed as beyond their competence and to refer them, whenever possible to other agencies. There is nothing new about this but the sheer magnitude of the current problem, especially among adoledescents, means that schools will have to develop their pastoral care functions in the direction of more extensive prevention and support. (I am not optimistic over this in view of the 'industrial' attitude being adopted by teachers when a child's problem appears to lie outside straightforward issues of classroom instruction.)

Emotional disturbance typically occurs under conditions of disturbed relationships within the family, the most difficult cases being where there is both an underlying susceptibility to stress and a deteriorating and unmodifiable family situation. This involves extremely complex dynamic issues and, though a high proportion of work with emotionally disturbed children uses behaviourist techniques, the influence of psycho-dynamic theorists such as Freud, Jung and Adler continues in clinical practice and therapeutic education. Indeed there has been a resurgence of interest in Adler through the work of Dreikurs, the family therapist. Thus the paper by Lower brings to our notice some extremely interesting work with families which has had a dramatic impact in the U.S. but has only recently attracted professional attention elsewhere.

Lowe thinks of the child as disturbing rather than disturbed, and that parents are ignorant rather than sick. He rejects the traditional methods of child control as being inappropriate now that children are seen as equals. Child guidance centres appear again under the guise of Adlerian approach. Lowe gives a very interesting account of the procedures of the centre at which he works, many of which will of course be familiar to those who have worked within orthodox child guidance settings.

Historically speaking the problem area of emotional disturbance has been noteworthy for many pioneering figures such as Redl, Bettelheim and Wills and for its influence upon education (and latterly, alternative education). This group continue to be a cause for concern as, perhaps even more than in the case of the developmentally disabled, resources are likely to be misused unless there is a co-ordinated multi-disciplinary attempt made to meet their needs. My impression, however, is that there is serious lack of such organisation and indeed facilities for treatment of all kinds in Australia.

B TECHNICAL AND ORGANIZATIONAL ISSUES

The adoption of responsibility for children who are severely handicapped has placed heavy demands upon instructional technology, which I agree is probably the most powerful form of advocacy for these groups. The development of techniques based on discrimination learning and operant psychology has completely transformed work in mental retardation and justifies in large measure the confidence and optimism of workers in the field. However there are still very considerable problems to be overcome in programming for the maintenance and generalization of behaviour. Generalization, in fact, is regarded by many as the central problem currently facing research in developmental disability although it is only quite recently that the problem has received major recognition: one of the main reasons for this is undoubtedly a somewhat loose use of terms which has brought together maintenance, transfer of training and generalization phenomena together under the one heading. It is now accepted that if generalization is to be specified as a programme outcome, then a rigorous analysis of the criterion behaviours involved is required. One of the constraints which operate upon generalization is of course the nature of the stimulus events concerned and here a major line of approach has been taken through the direct instruction of concepts and operations.

Much of the discussion about educational technology refers to children within the regular school system and here it is evident that comprehensive systems for instruction and management are now emerging. These can be used for the achievement of minimal educational objectives for the vast majority of children but whether Australian educators are willing to accept this formal responsibility remains to be seen.

An important feature of the Seminar papers is an emphasis on the logic and organization of service delivery. This now recognises the need for continuous development accompanied by evaluation of programme effectiveness and this is demonstrated in the papers by Parmenter and others. The implications of this approach for contemporary research have been known for many years. Research which is undertaken in the context of delivering services may permit continuous evaluation and it is for this reason, among many others, that the results of Follow Through in the U.S. are so important as a source of data relating to planned variation in the delivery of educational services to the disadvantaged. Such programmes possess a heavy input from research centres and are what in the American context might be regarded as technical assistance. Indeed several papers describe examples of the work of University Affiliated Facilities: Whelan provides a good example in the area of staff training as a means of disseminating research information. The need for training programmes of all types also receives proper emphasis in the papers, varying from parent training programmes to the training of professional research workers.

Readers of the papers will inevitably interpret the materials in terms of their own current perspective. I find myself relating much of the content to a concept I am presently developing: that of educational marginality and non-marginality. Marginal groups refer to those who for various reasons e.g. inadequate eduational achievement, poor socialization, emotional disturbance etc., are out of touch or becoming progressively out of touch with their peers in the mainstream. The point of proposing such a broad concept is that it does not imply causality but the identification of the deficits involved in marginality on the assumption that strategies are available or will be developed to remedy the situation. Children at risk who are non-marginal represent two basic types: the developmentally disabled who are retained in segregated facilities and the emotionally disturbed and/or delinquent who are being removed from regular classrooms for various reasons. Obviously these are two very different groups who have in common segregation and, frequently, long-term institutionalization. The primary thrust of the regular school system is, or rather should be, the prevention of marginality but, reciprocally the initial task of special education is to create marginality, both of these endeavours requiring effective deployments of high-cost professional resources. Here I found the paper by Brolin to be provocative because it states a number of areas in which children can become marginal. Career education obviously requires the educational system should address itself to these areas of competence.

As regards the preventive role of the system it could be argued that the work of Becker et al. and Maggs et al. could have an important role in ensuring academic competence and, at the same time, promoting positive self esteem. To accomplish all this, however, some type of systems approach towards the management of necessary resources is required. By contrast, non-marginal groups may require not only a great deal of environmental prosthesis but also very high quality training in order for them to acquire even the most basic competences necessary to engage their environment, hence the interest in training for generalization. Unfortunately, many of the readers of these papers will know that more complex 'marginal behaviours' are often regarded as undesirable in segregated facilities.

It is arguable that without high quality technology both regular and segregated schools cannot really achieve integration but merely stabilize children in non-marginal roles. Thus the problem is not merely one of physical location or educational structure and there are many who argue for the maintenance and even extension of 'special' facilities. For instance there seems to be a growing tendency in some parts of the U.K. to segregate children with behavioural difficulties rather than devote these resources to strengthening the competence of regular schools in their pastoral care role. It goes without saying that this undesirable movement clearly demonstrates the traditional organizational tendency to externalize problems rather than treat them, but unfortunately it is being further strengthened by the increasingly restrictive views which teachers are developing as to their professional roles and functions.

C. IMPRESSIONS

Finally I wish to record my general impressions gained from this wide variety of papers and discussions which followed them. These relate to those parts which attracted me most as indications of progress in the field and also some topics which I thought received scant mention or emphasis but nevertheless I believe are significant for future work.

As regards the first of these, what comes over is a quiet confidence that the problem areas of special education are now well defined and, given adquate support we are in a good position both to reduce the numbers of children at risk and to continue the progress made in the habilitation of handicapped children. There seems to be acceptance of the human rights of the handicapped and their need for acceptance and integration. Where it is evident that papers contain powerful advocacy the arguments are rational rather than emotional, reflecting a balanced professional viewpoint. Even so, along with this confidence there is questioning of the social assumptions surrounding special education and the education of those at risk in the regular school system. The need to translate theory into practice and to provide training in high level technology seems to be an underlying theme in many of the papers, although, as a whole they do not contain a great deal of theoretical discussion. From the Australian point of view an important feature of recent work in special education has been the major enquiries, researches and surveys commissioned by Central government which have mapped out major problem areas such as mild retardation and learning difficulties in much greater detail. The growing tendency for administrators to base planning upon hard research data is to be welcomed and here I wish to pay tribute to Professor Watts and her colleagues at the University of Queensland for their contribution: we look forward to their forthcoming national survey of special educational provisions. However, along with such information I am sure that there is a need for a longitudinal survey of a cohort of children and for parallel studies of groups of various forms of risk.

I wish now to mention a number of areas which I think do not receive much attention in the series, some of which are in my view of continuing importance. In the case of both developmentally disabled and emotionally disturbed there is an unexpected lack of reference to institutionalization, which in view of the importance of the topic of the last 24 years is somewhat surprising. There can be no doubt that the problem of institutionalization in one way or another will be with us for many years to come, particularly in terms of redefinition of institutional roles. For instance there is the issue of the high degree of environmental prosthesis which may be achieved in segregated facilities, for in many cases the expansion of microprocessing techniques could eventually lead to the creation of complex and responsive environments. This will inevitably introduce a new set of challenges for instructional technology, including the problem of programming for generalization.

Then, as one who has been associated with special education for over 25 years I find the almost total lack of interest in psychometric issues remarkable, for at least two areas seem to me to be of importance both for present and future work. The first of these is the natural development of the research which is traditionally directed towards discovering aptitude/treatment interactions and which attempts to apply the findings of differential psychology to instruction. This work has encountered very great difficulties but, nevertheless, important issues still remain such as the possibility that through accurate identification of individual response characteristics more efficient and economic instruction can be given and that through analysis of successful/unsuccessful characteristics, strategies which may be used for programming generalization may be found. Secondly, an important psychometric growth area is being developed through the increasing use of data-based, instructional techniques. Here there are many possible applications of criterion-referenced testing and also the ordering theory techniques which can identify complex hierarchies in learning, with obvious implications for instructional technology. I anticipate that the tendency towards disregarding individual differences in much of current special education practice will be reversed, particularly in the non-cognitive areas, and that, having worked through some of the problems of the so-called 'ability' and profile measurement models, special educators will renew interest in individual subject's response tendencies.

This last point reminds me that, out of keeping with the practice evident several years ago, the papers do not contain any vituperative attacks upon opposing theory, of the type conventionally undertaken prior to establishing any theory one might wish to promote. Here I believe that part of the credit for this change must belong to the current generation of work in language and higher mental processes which, through its very complexity has forced workers to adopt a far more eclectic and conciliatory view of theory. For language is, and will continue to be, the main subject for research in developmental disability and the solutions found in teaching the generative aspects of language will impinge upon teaching of all other forms of higher mental process; which in any case may be strongly dependent upon language. This is a vast and exciting field for research in which progress is very slow and research findings often contradictory.

Finally I come to the problem area of emotional disturbance which, like developmental disability can only be attacked through systematic, often multi-disciplinary programming. Like the field of language acquisition, emotional disturbance can accommodate a variety of approaches: in the specific area of conditioning technology it necessitates both the use of respondent and operant models, and as is evident in the paper by Lowe, the use of psychodynamic rather than behaviourist approaches. This last can refer not only to the dynamics of unconscious processes in the individual but also the dynamics of the group. Indeed the analysis of group processes in teaching and communication is a major field for future research. We will certainly have to define what a 'supportive family group' is and what the characteristics of a 'positive language environment' are much more rigorously, if successful programming for generalization is to be achieved.

However the above must not be taken as a criticism of the quality and thrust of the Seminar papers which were intended, through an expression of personal insights to challenge a fairly sophisticated audience, conversant with the main problem areas. I am happy to report that in my case, the papers succeed in this aim and that my reaction is one of considerable satisfaction with the developments in Australia and abroad, which they reflect. Pieterse mentions in her paper the important 1978 conference at Stirling which was concerned with future special education. My own prediction is that if this seminar were to be repeated in 1989 the present rapid rate of change and development will have continued. However, it will have taken place in a much more realistic political and economic climate.